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Three Techniques for Measuring Student Achievement of Guidance Objectives

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THREE TECHNIQUES FOR MEASURING STUDENT ACHIEVEMENT OF GUIDANCE OBJECTIVES

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TABLE OF CONTENTS

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The purpose of this study was to compare and contrast 3 different methods of measuring students' achievement of school guidance program objectives. This study concerned a stratified random sample of 100 male high school seniors of a large catholic technical high school in Chicago. The school has 9 objectives covering 3 domains: academic, personal and career. Basically the objectives were concerned with the following: accuracy of self-assessment, appropriateness of course selections, achievement commensurate with ability, willingness to self-disclose, intrapersonal and interpersonal self concept, career knowledge, ability to relate self to careers and decision making ability.

Students first rated themselves on the extent to which they felt they had accomplished the objectives and then independently the school's 9 counselors did the same. These self-ratings (method I) and counselor ratings (method II) were compared to indices of accomplishment (method III) that were computed from the students' scores on: the Tennessee Self Concept Scale, Iowa Test of Educational Development, Assessment of Career Development, and the Strong-Campbell Interest Inventory, and locally designed questionnaires including classroom teachers' ratings.

Significant canonical correlations were found between the methods. Analysis of the product-moment correlation tables between the methods showed ample evidence of convergent validity of the measures but poor

evidence of discriminant validity. A factor analysis was performed in which 4 factors emerged and were labeled counselor halo effect, student self-esteem, career development, and academic achievement. The counselors' ratings were found to be a function of the extent to which a student achieved relative to his measured potential, and the students' self-ratings were related to their overall level of self esteem. Student self-ratings could be used to measure their intrapersonal and interpersonal self concepts (instead of the TSCS), and counselor ratings could be used to measure the extent to which students achieved to their measured I.Q.

In conclusion, counselor ratings were found to be very biased and therefore invalid. Student self-ratings showed greater evidence of discriminant validity because there was considerable method overlap between the self-ratings and the indices of accomplishment. Both methods are essentially paper-and-pencil self-reports. Evidence was present for dividing guidance program objectives into the 3 domains of academic, personal, and career development. The results indicate the need for further refinement of the methods used and counselor training for greater discrimination of student accomplishment of the objectives.

VITA

The author William Roche Watts is the son of Ernest F. Watts, Sr. and Frances R. Watts. He was born March 29, 1944 in Chicago, Illinois. He is the husband of Kathleen Collins Watts and the father of Erin and Jason.

His elementary education was obtained in the Catholic schools of Oak Park and River Forest, Illinois and secondary education at Fenwick High School, Oak Park, Illinois where he was graduated in 1962.

In September, 1962, he entered Providence College, in Providence, Rhode Island for his first year of college. The following year he transferred to Loras College in Dubuque, Iowa as a seminarian of the Dominican Fathers. In November, 1964 he left the Dominicans and took a position as a junior high school teacher in a Catholic grade school in a suburb of Chicago. The following September, 1965 he attended the Loyola University Rome Center, Rome, Italy for one semester. Then in January 1966 he returned to the United States to begin teaching again in a Catholic grammar school and attending evening school, the University College of Loyola University, Chicago from which in February 1968, he received the degree of Bachelor of Science in Humanities majoring in history.

He returned to Loyola University in September, 1968 and received a Master of Education degree in Guidance and Counseling in 1970. Also in 1970 he left teaching in the grammar schools to take a position as a full time counselor at Gordon Technical High School in Chicago. In 1973 he became the Director of Guidance.

LIST OF TABLES

CONTENTS OF APPENDICES

CHAPTER I

INTRODUCTION

Evaluation of educational programs has received significant emphasis in the literature (Pratt 1975a). Guidance programs are, of course, no exception (Pratt 1975b; Zytowski 1975). Several studies have demonstrated the efficacy of the systems approach to organizing and evaluating all types of educational programs including guidance programs (Miller & Grisdale 1975). A formal systems approach begins with a needs assessment of the students or client population, and the results are then used to write broad goals. From the list of goals, specific behavioral objectives are written. At the same time the objectives are written, strategies for measuring them are agreed upon as well as criteria for accomplishment. From the objectives, a program is designed, implemented, evaluated, and then the program is either revised or new objectives are written. In either case the system is self-renewing.

Martin Katz (1972),of Educational Testing Service has strongly urged school counselors to follow such an approach in setting up, organizing and evaluating their programs, but he also acknowledges the complexities and shortcomings of such an approach. Katz feels, though, that in spite of these shortcomings school counselors must try to assess outcomes, and then use the data that are generated from these assessments to revise their programs. He also feels that using evaluation results to redesign programs would provide an excellent decision-making model for students.

Assessing outcomes or measuring achievement of objectives of educational programs is not an easy task. Objectives are usually classified as cognitive, affective, or psychomotor. Each type requires a different evaluative criterion. The problem is how to best ascertain the degree to which stated educational program objectives are being realized given the limitations of the school environment, the time and training of staff, and the program budget. Conducting evaluation in a school setting usually does not allow for the types of controls that are felt to be necessary for scientific inquiry. It is important, therefore, for practitioners to know and understand the differences in purpose between scientific research and program evaluation. The goal of scientific inquiry is the advance of scientific knowledge including the exact relationship between dependent and independent variables. The goal of evaluation, however, is collecting data that will help school or program personnel make decisions about programs, that is, how to modify them or perhaps whether to even continue them. It is not interested *per se* in establishing cause and effect relationships. Evaluation studies attempt to provide answers to the questions: Is the program working? Is it doing the job that it was created for? Is it worth continuing? Which parts, if any, need bolstering?

Most school guidance programs have developed to the point now that they have clearly stated objectives of which faculty, students, and parents are fully aware. Going one step further, every school and school system should be trying to evaluate the extent to which these objectives are being accomplished by the students. Until the beginning of this decade, the standard way of evaluating school

guidance programs was to have students, parents, teachers, administrators, outside experts, and/or counselors rate the degree to which various services such as testing, counseling, and referral were practiced as part of the established guidance program.(Pine 1975). If all the services were being offered satisfactorily in the opinion of the raters, then the program was judged to be successful. Little thought or effort was given to actually determining what the students were learning or how they were changing as a result of having a guidance program in the schools.

In the late sixties and early seventies several reports in the literature have appeared using "outcome measures" that is what students know and can do as a result of the guidance program (Wysong 1968; Fleming 1971; Schwartz 1972; Woolley 1973; Dixon 1973; Deal et al, 1974; Heilwell & Jones 1975). Attempting to assess just what the students are "getting out of" guidance programs in relation to the program objectives would seem to be the best way to determine their efficacy.

This present study was done with a stratified (according to ability) random sample of 100 seniors of a large local Catholic boys high school. This high school is a technical school located on the north side of Chicago serving all ability levels with the exception of the lowest ten per cent as measured by a standardized achievement test. Forty-two per cent of its graduates attend 4-year colleges, 21 per cent attend 2 year colleges and 27 per cent either go right to work or enter the armed services. The number of students in each of the 3 tracks (ability levels) corresponds to the percentage of students in the senior class in each track, and an approximately equal number are drawn from each counselor's caseload.

The school's guidance program objectives are considered to be stated generally enough so that all schools could identify with them yet specific enough to be measurable. They were written following a needs assessment of the student body and in consultation with the faculty and administration of the school. The conceptual framework proposed by Wellman (1967) as an outgrowth of the National Study of Guidance was used as a guide, hence the objectives are divded into 3 categories: academic (educational), personal (social), and career (vocational). In each of the 3 areas, there are objectives for each of the 3 levels that are spelled out by Wellman: awareness, accommodation, and action. The objectives are:

Academic Objectives

1. Each student will assess his academic strengths and weaknesses including his abilities, study habits, classroom attending behaviors, skill development, and motivation.
2. Each student will execute a course of studies relative to his assessment of his abilities, interests, values and goals.
3. Each student will make plans to improve his academic performance if necessary.

Personal Objectives

4. Each student will identify his personal concerns.
5. Each student will form a positive self-concept.
6. Each student will form satisfying interpersonal relationships with peers, family, teachers, and others.

Career Objectives

7. Each student will gather career information from a variety of sources.

8. Each student will evaluate the career information in relation to his abilities, interests, and values.
9. Each student will develop and implement decision making skills to formulate short and long range career plans.

For purposes of this study, the sample population of students were asked to make a self-rating of how well they felt they knew, had done, or could do what is stated in these objectives. These self-ratings constitute the first method of this study. Similarly, each of the school's 9 counselors were asked to rate how well they felt each of their students in the sample population had accomplished the objectives. The counselor ratings are the second method. And finally, each of the students in the sample population was administered a battery of standardized questionnaires and tests along with some locally designed questionnaires. The results were tabulated and an individual numerical score or "index accomplishment" was computed for each objective for each student. Details on the computation of this index for each objective are contained in Chapter III. These indices of accomplishment constitute the third method of this study and are the most comprehensive and presumably the most objective measures.

Purpose of Study

The focus of this dissertation is to examine similarities and differences among 3 different methods of measuring the students' achievement of Guidance Department objectives. If a school district or school can determine that student self-ratings and/or counselor ratings led one to essentially the same conclusions about which

objectives were being achieved as more expensive, time-consuming methods, then much time, energy, and money could be saved. It is hoped that this study will stimulate other schools or districts to try alternate methods of evaluating their guidance programs, and then report which methods are best suited for various types of objectives.

Specifically, this study will examine which of the 9 objectives can be validly measured by student self-ratings and/or counselor ratings instead of the more expensive and time-consuming indices of accomplishment. Each index was computed by mathematically manipulating the students' scores on a self-concept inventory, career development inventory, vocational interest test, and 4 locally designed questionnaires in addition to ratings obtained from 45 classroom teachers. The subjects were all senior boys in high school representing a wide ability range and diversity of immediate plans after graduation. The 3 ability levels are: accelerated (N-21), average (N=55), and basic (N=24). In addition to providing useful data for school guidance programs, this investigator believes that further research could improve the evaluation methodology employed in all guidance program settings. This information can also serve as a helpful reference for counselors and administrators in program settings in deciding what strategies to employ to measure each objective of their program. Obviously, better decisions about the future directions of the program will result from better evaluation methodology. Ongoing summative and formative evaluation is a must for all programs in our current tight budget situation. Decisions about what to modify in educational programs or whether or not to even continue them should be made on data or evidence generated by comprehensive

evaluation studies and not the impressions and prejudices of educational administrators.

This study asks the following question: For which objectives can the Senior Self-rating of Accomplishment of Guidance Program Objectives or the Counselor Rating of Individual Student Accomplishment of Guidance Program Objectives be used to measure achievement of the objectives instead of the indices of accomplishment?

The following null hypotheses were tested:

1. There is no significant relationship between the student self-ratings and the indices of accomplishment for each objective.

2. There is no significant relationship between the counselor ratings and the indices of accomplishment for each objective.

3. There is no significant relationship between the student self-ratings and the counselor ratings for each objective.

4. There is no significant relationship between the combined self and counselor ratings and the indices of accomplishment for each objective.

Limitations and Scope

1. All subjects were senior boys enrolled in a Catholic high school in a large city. Only two of the students in the sample are Black. Hence, one must be very cautious in generalizing the results to other schools.

2. Even though the guidance program objectives are stated generally enough so that other school personnel in virtually any setting should easily be able to find great similarities with their own, they are still the product of just one high school.

3. The purpose of this study is not to evaluate these objectives or the school's guidance program but to compare and contrast 3 different strategies for evaluation of guidance program objectives.

4. The 3 methods chosen are essentially paper-and-pencil methods and are only a few among many alternatives available to the practitioner.

Organization

Chapter I has presented an introduction and brief overview of the research project. Chapter II presents a review of the literature relevant to the present study. Chapter III will include the methodology of the research design, description of the instruments utilized, details on the computation of the indices of accomplishment for each objective including a rationale, the subjects, and the statistical procedures employed. Chapter IV delineates the results of the data analyses and Chapter V offers a summary, conclusions and recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter discusses a review of the literature related to evaluation of guidance programs, evaluation theory, the reliability and validity of adolescent self reports as well as counselor ratings, and studies using the same instruments employed in this study.

General Overview

Summarizing 3 years of literature on school guidance programs, Gelatt (1969) suggested that the debate regarding the title, role, function, status, and training of guidance workers would remain until guidance clearly identifies its purposes and objectives and then evaluates the effectiveness of its procedures and the accomplishment of its objectives. He then called for research to be designed and conducted in the schools where the research questions were and are being asked.

A review of the subsequent literature reveals that it contains a host of studies which attempt to define, implement, and/or evaluate a multitude of evaluation models and processes. "Accountability" became an educational byword.

Pine (1975) delineated and defined 9 different approaches for evaluating school counseling effectiveness. Even though this study is concerned with only the last one, it is useful to keep it in perspective in relation to all the rest.

1) Tabulation Approach - keeps records of the number of clients

seen, number of counseling sessions conducted, nature and kind of problems discussed and so on.

2) Follow-Up Approach - involves contacting as many program graduates as possible either by mail or in person to determine their current status and ascertain their opinions about the program.

3) Expert Opinion Approach - Calling in outside experts for their reactions.

4) Client Opinion Survey Approach - involves development and/or adoption of an attitude scale to determine the client populations' reactions and feelings to the guidance services as they are currently being offered.

5) External Criteria Approach - standards are set up against which a program is then compared.

6) Significant Other Opinion Survey Approach - involves developing and/or adopting an attitude scale to determine the reactions and feelings of teachers, parents, and administrators toward the program as it is currently being offered.

7) Descriptive Approach - issuing a report in which program practices are analyzed and described in detail.

8) Case Study Approach - a longitudinal view of a client or clients describing specific practices tried successfully or unsuccessfully.

9) Experimental Approach - uses basically 3 designs: "after-only design" (this study), "before and after design," and the "before and after with control group design." This approach is the only

one which seeks to measure changes in the client population.

This literature review limits itself to descriptions of reports utilizing the Experimental Approach only since this is the approach used in this study.

Studies in the Field

Studies which attempt to measure the outcomes, that is what students know and can do or have done, of school guidance programs nearly always follow a systems approach. In 1975 Miller and Grisdale reviewed a number of available guidance evaluation materials and programs. They found materials ranging from simple evaluation instruments to comprehensive process guides for the planning, development, and utilization of a total systems approach to evaluation. Studies reported in this review include those found by Miller and Grisdale in addition to others. From their survey they concluded that the guidance evaluation area has four great needs. First, local practitioners need to share the results of needs assessments to establish high-consensus guidance goals. Next, evaluation measures need to be designed for these goals. Third, research must begin to match guidance practices with student attainment of these goals. And fourth, counselor competencies must be defined which relate to program development and evaluation.

Central to a systems approach is the continuous use of our distinct types of evaluation. Stufflembeam (1971) has defined these four as context, input, process, and product evaluation (CIPP). Context evaluation helps set goals and objectives for guidance by generating data concerning student needs. Input evaluation helps guidance workers design programs by generating data about the ability of the school to support various

methods in addition to the effectiveness of the methods themselves. Process evaluation helps with program implementation by generating data about the efficiency and effectiveness of procedures that are being used. Finally, product evaluation helps with program revision by generating data about the effectiveness of guidance procedures for producing specific guidance outcomes.

The following program reports are grouped into these 5 categories: systems approach, context evaluation, input evaluation, process evaluation, and product evaluation. Each of these reports include evaluation instruments, sample evaluation items, and process guides which provide information on procedures needed to design evaluation instruments.

Systems Approach

The Systems Approach to the Development of Pupil Personnel Services (Cook 1973) is a handbook or manual which spells out 10 steps for implementing a systems approach for planning, developing, and evaluating guidance programs. This text includes a discussion of how to: 1) conduct needs assessments, 2) state goals, 3) determine goal priorities, 4) operationalize goals, 5) identify functions, 6) relate functions to goals, 7) design new programs, 8) test programs, 9) operate programs, and 10) evaluate the programs. Sample data collection instruments as well as a comprehensive discussion of how this approach was implemented in the Bedford, Massachusetts Public Schools is included.

The New England AMEG Kit for Evaluating Guidance Program Effectiveness (New England AMEG 1974) is a collection of booklets that were prepared to enable guidance departments to use an accountability model in evaluating their guidance programs. Teams of consultants are available

in the New England area to help guidance workers to utilize these materials and to evaluate and interpret their locally collected data. These consultants follow a 3 stage process to help a local school design an evaluation program and interpret their results. Before this consulting program even begins though, the local guidance staff and administration are required to make a total commitment to the evaluation process. The outcome that is promised is a guidance program with clearly stated objectives and evaluation procedures to measure accomplishment of the objectives.

The Mesa Public Schools Accountability Model For Counselors is a joint product of local, state, and federal funding with consultant assistance from the American Institutes for Research in the Behavioral Sciences. A comprehensive program is described that includes details on the development and evaluation of guidance programs. All 4 types of evaluation that were defined earlier are included: context evaluation, input evaluation, process evaluation, and product evaluation. This project report includes the following: 1) a detailed description of the needs assessment techniques utilized, 2) the guidance model that was developed, 3) the procedures for the design of the program's learning units with objectives, strategies employed, and evaluation.

The Comprehensive Career Guidance System Project (Jones 1971, 1972) is the result of a federally funded effort to create and then field-test aspects of an individualized guidance system for junior and senior high school students. Along with the production of the guidance materials, Jones (1972) produced a manual describing the systematic planning model followed in the project. This 5 stage model includes the following

steps: 1) defining developmental needs and their related objectives, 2) classifying the objectives according to what they have in common, 3) identifying and selecting various strategies to obtain the objectives, 4) carrying out the strategies, and 5) evaluating and improving the strategies. The final chapter provides a list of specific objectives along with materials to help in accomplishing the objectives.

Operation Guidance (Campbell 1972, 1974) is a project which produced a total package of materials that local school districts can use in implementing a systems approach in designing career guidance programs. The 10 step model includes 1) context evaluation, 2) establishing program goal priorities, 3) writing behavioral objectives from goal statements, 4) selecting appropriate input evaluation methodology, 5) selecting appropriate input evaluation techniques, 6) trial implementation, 7) process evaluation, 8) product evaluation, 9) adoption, and 10) recycling. Under development since 1971 this program has been field tested in 6 schools in 5 different states. These materials are available from Ohio State University Center.

The Student Guidance System (Hays, 1974) is concerned with accomplishing 1 major goal with students, that is, that students will weigh several alternatives in a reflective manner in developing personal and career goals. In order to determine whether or not this is actually happening, the program has defined specific outcomes as well as practices to produce these outcomes. Finally, examples of a progress report used to evaluate the program are given.

The California Personnel and Guidance Association Monograph Series contains 4 monographs discussing and illustrating various approaches to

implementation of a systems approach in evaluating guidance programs. (O'Hare & Sullivan 1971, O'Hare and Lasser 1970, Mitchell & Saum 1972, and Bates and Keirsey 1972).

The Pennsylvania Department of Education has produced Guidelines for Self-Study of a School District Guidance Program (1974). Specific details are provided for conducting a guidance self-study. First, data is collected and analyzed from the guidance program's various publics. Next program objectives are defined along with strategies for accomplishing them and methods of assessment. Finally, the guide shows how to develop a plan for implementing a revised guidance program. Heavy emphasis is placed on illustrating a compendium of instruments for collection and analyzation of data from various publics including instruments for discerning the community, the school, and expectations that significant others have of guidance.

Context Evaluation

The purpose of this type of evaluation is to provide data not only about what the needs of the target population are, but which ones should be met before others. Hence, once a list of needs is prepared some method such as Q-sorting must be used to rank order these needs to establish program priorities.

The Kentucky State Department of Education has prepared a Needs Assessment Procedure (Kentucky State Department of Education 1974; Phipps 1974). The needs assessment procedure contains the following 5 steps: 1) a set of possible career guidance goals is prepared, 2) data is collected from various groups, 3) goals are interrelated to determine areas of commonality among groups, 4) the gaps between

priority goals and the extent to which they are actually being met is determined, and 5) goals are selected for the program. A questionnaire asking respondents to check 20 goals from a list of 100 was used. Examples of procedures used to analyze the data are included.

The Mesa Public Schools also conducted a Needs Assessment Study (1972) with interviewers from the American Institutes for Research in the Behavioral Sciences. Four different decks of cards (educational-vocational, academic-learning, interpersonal, and intrapersonal) with 1 need statement per card were used. Interviewers helped the participants sort each deck into priority rankings. Included in this report is a detailed description of the process, a list of the needs statements and results of the study.

A Counselor's Workbook has been prepared by the South Dakota Department of Education (1974) to help counselors use an accountability model for guidance. In this workbook a needs assessment procedure is described. The instrument used for collecting data on student needs is included. This instrument asks respondents not only to indicate what their needs are, but also their strengths and the extent to which they feel the current program is meeting their needs. Lastly, the needs statements are linked to a list of program objectives.

Bernkopf et al (1975) factor analyzed the reactions of 86 eighth, tenth and twelfth grade students to a carefully developed needs assessment instrument. Although they had postulated 4 factors (self-awareness, decision-making, career development, and interpersonal relations), a 2-factor solution was found to be the most appropriate. The 2 factors were career development and interpersonal relations.

Input Evaluation

The purpose of this type of evaluation is to provide data about the potential of local resources, including staff competencies and the potential of various guidance practices to actually effect client accomplishment of the guidance program objectives. Procedures classified as input evaluation include surveying existing research results and assessing local staff competencies and available resources in the agency and in the community.

A survey of a number of such methods was prepared entitled Handbook of Career Guidance Methods (Campbell et al. 1973). The details and specifications of the guidance methods, which are needed for special student populations, are included. In addition, research evidence is presented about the relative merits of different groupings of methods along with a list of alternate methods. Local practitioners can utilize the data provided in this handbook to evaluate the appropriateness of specific methods they are using or may wish to use.

The Guide to Innovation in Education (Havelock 1972) overviews strategies for choosing and implementing new programs in education. Two chapters, "Retrieving Relevant Knowledge" and "Choosing a Solution" contain numerous ideas and suggestions for input evaluation programs. In addition, the appendix contains lists of strategies and tactics for collecting data.

An entire spectrum of counselor competencies is included in Counselor Competencies prepared by the Texas Education Agency (1971). Four broad Competency areas are defined. They are planning, organizing, and evaluating; counseling; consulting; and coordinating. This guide

could serve as a tool for inventorying the strengths and weaknesses of counselors in local districts.

Likewise Career Guidance Competencies (Mitchell (1974) posits that systematic program planning in guidance points out the great need for the development of new counselor competencies. She suggests 6 areas of competency: 1) program planning, 2) implementation, 3) consulting, 4) linking, 5) staff development, and 6) evaluation. Still another list of counselor competencies was developed by the Illinois Guidance and Personnel Association (1976) in their presentation of a competency-based counselor training model. This model contains 8 general areas of counselor competency: 1) counselor as person, 2) counseling skills, 3) consultation skills, 4) human appraisal skills, 5) career development, 6) coordination, 7) research and evaluation, and 8) referral.

Process Evaluation

Process evaluation has as its purpose to provide information about the efficacy of guidance practices, the extent to which certain practices are actually being carried out, and the attitudes of clients toward these practices. The Cincinnati Public Schools' Guidance Assessment Project (Terry 1975) produced as part of a ESEA Title III project, a method for monitoring the use of counselor time. IBM cards and scan sheets were used. Six categories were developed for classifying time. They were individual student counseling, individual student information service, individual adult conference in school, student group activities, solitary in-school activities, and adult group and out-of-school activities. Actual time spent in each category was compared to previously identified student needs and the guidance program objectives.

Recommendations are included on how to make counselor use of time more congruent with student needs and program objectives.

The Fort Wayne Community Schools created a model of what they consider to be effective guidance operation entitled Accountable Management for Effective Guidance Operation (Baugh 1971). Performance objectives were written for counselors, administrators, parents and teachers. Central to this model is the belief that counselors should accept responsibility for seeing to it that every student experiences certain predetermined services, every teacher experiences consultation services, and the administration is provided with accountable feedback. Many forms are provided to aid with the implementation of this model. Samples of the forms used in collecting process evaluation data are included: 1) student voucher card, 2) student personal assessment profile, 3) guidance program log, 4) teacher voucher card, 5) counselor personal contact log, and 6) counselor's time-function use analysis.

The Denver Public Schools (Linquist 1973) in conjunction with the University of Colorado worked to combine a staff development approach with an accountability approach for pupil services staff. The first step involved the identification and formal statement of the current duties of the pupil services workers. The second step then translated these role statements into a set of outcome statements, that is declarations about exactly how the students are to benefit as a result of the adults' efforts.

Product Evaluation

This type of evaluation provides answers to questions concerning which objectives of the guidance program have been met. The literature

contains evidence of local program efforts to design test items for their own objectives, national efforts to form a working bank of objectives with associated test items, computer systems for monitoring student progress on guidance objectives, and analyses of existing instruments to match appropriate items and/or scales to specific objectives.

The Connecticut Department of Education (Deal, Halbert, and Kaufmann 1974) selected goals and objectives modified from O'Hare and Sullivan (1971) that could be reasonably assessed by paper-and-pencil instrumentation. Two different instruments were developed (Johnson and Mitchell 1974 a and b). One was for 13-year-olds and 1 for 17-year-olds. Both were administered to a state wide sampling in 1974. The instruments as well as a discussion of the results are included in this report providing concrete examples of items that can be geared to specific objectives.

Behavioral Objectives in Guidance (Fleming, 1971) prepared for the Broward County Schools, Florida, is an excellent guide for translating goals into objectives and these in turn to evaluation items. Goals are listed first, followed by specific student objectives so worded that they define how the program will operate. Finally, guidelines for evaluation are presented. Even though evaluation items are presented in the report, this was not its main purpose. This report's main interest is to provide specific examples of how to translate goals into evaluation items.

Educational objectives and criterion-referenced test items for a number of educational areas are available in the Instructional Objectives Exchange (1974). Measures of self-concept and attitudes toward school are 2 areas which are included that relate to guidance. Included

in the self-concept packet are 30 objectives related to peer group relationships, scholastic attitudes, family relationships, and general self esteem. The attitude-toward-school packet is made up of 42 objectives associated with attitudes toward the teacher, school subjects, learning, peers, and the social structure and climate of the school. New areas are added to the Exchange as demand dictates.

Part of the National Assessment of Educational Progress: Career and Occupational Development (1971) is career and occupational development objectives and criterion-referenced test items. Five major areas of objectives are included: 1) preparing for making decisions, 2) improving career and occupational capabilities, 3) possessing skills that are generally useful in the world of work, 4) practicing effective work habits, and 5) having positive attitudes toward work. Results of the data collection as well as the actual test items used are available.

The Priority Counseling Survey (Smith 1970; Smith and Johnson 1971) as an instrument which is capable of being hooked up to a student record system. It has been used in the Covina Valley Unified School District, California to provide data that, when compared to existing student records, gave evidence for estimating student progress to accomplishing educational and career planning objectives. Data is first collected about students' academic interests, occupational interests, academic abilities, job values, career plans, grades and test scores, self-estimates, post graduate plans, and current courses of study. Each student is monitored by a computer and discrepencies are highlighted. Those students so singled out are called in for counseling assistance. This survey is available commercially and can easily be used for product

evaluation by comparing student data to other data to evaluate student plans and self perceptions.

Westbrook (1974) analyzed 6 different career development tests to identify and label the learner behaviors they measured. There were 609 items in the 6 tests: ETS Guidance Inquiry, Readiness of Vocational Planning, Cognitive Vocational Maturity Test, Career Development Inventory, Assessment of Career Development, and the Career Maturity Inventory. Each item in the 6 tests was examined to define the behavior required of the learner and the setting or situation in which this behavior occurred. The total number of items was reduced to 117 and were then divided into 12 categories. Westbrook concludes that it is possible to use these 6 tests not only to look at career development for a particular student or group, but also specific objectives can be measured with the various subparts of the tests.

The Lower Dauphin School District in Hummelstown, Pennsylvania (1972) utilized a self-concept and motivation inventory on a pre- and post-test basis to attempt to evaluate a classroom vocational guidance program for junior high school students, but found no significant differences. They concluded that the instrument was incapable of measuring what the real outcomes of the program were.

Dixon reporting for the Clark County School District (1973) in Las Vegas, Nevada reports measurable success in all phases of their Objective-Based Career Guidance Program after 1 year of implementation. Information was collected from 300 ninth grade students and 700 tenth grade students. Results are reported for 3 areas: information about self, information about careers, and decision-making.

Helliwell and Jones (1975) used criterion-referenced tests and questionnaires with students, teachers and parents to assess the outcomes of a district-wide guidance program. They report that 9 out of 10 product objectives were satisfactorily accomplished. In addition they report substantial unanticipated side effects in such areas as more constructive use of counselor time. In a lengthy commentary the authors discuss 5 problems and their possible solution relating to conducting effective evaluation programs in school settings. Several recommendations are made which could save practitioners from falling into several avoidable pitfalls. The authors address themselves to the following questions: 1) what are realistic expectations for evaluation? 2) how detailed and specific do behavioral objectives have to be? 3) how does one get all staff involved in cooperative evaluation planning? 4) why is extensive pilot testing necessary? 5) what is an adequate research design for a school setting?

In 1968 Wysong used a student self-rating instrument to determine if it could distinguish between groups of high school students who were achieving guidance objectives and those who were not. The method of distinguishing students who were accomplishing the objectives from those who were not, was the utilization of counselor judgment or ratings. Similarly, Bardo (1972) found that comparing student self-report data to criterion measures established by counselors is a feasible approach to evaluating school guidance programs. It should be noted that neither author attempted to compare the results of each student's self reports to more objective standardized measures as this study does to determine the efficacy of such self-reports.

In the Newport-Mesa Unified School District of California (Woolley 1973), the guidance personnel are asked to provide written reports at the conclusion of the school year listing the names of students who improved that year. Evidence for improvement, however, is drawn from the highly subjective anecdotal records of the guidance specialists.

The effectiveness of the guidance services were evaluated in the non-public schools of New York (Schwartz, 1972) by comparing the referred students with non-referred students on several measures: grades; attendance; attitudes toward school, toward learning process, and towards school-mates; and teacher ratings of classroom behavior. In general the referred students showed improvement on post-measures over pre-measures, but the specific objectives of the program were not stated, and no attempt was made to determine the impact of the guidance program on the non-referred students.

To summarize this section, 7 studies were found in which a school or district reported following a systems approach in organizing, implementing and evaluating their guidance programs. In addition several guidance examples of the implementation of the 4 types of evaluation as defined by Stufflebeam (1971): context, input, process and product, were discussed.

Reports on Evaluation Theory

Martin Katz (1972) of Educational Testing Service strongly urged school counselors to follow a systems approach in setting up, organizing and evaluating guidance programs, but in the same paper acknowledged the complexities and shortcomings of such an approach. Katz felt that in spite of these shortcomings, school counselors should try to assess

outcomes, and then use the data that are generated from these assessments to revise their programs. Using evaluation results to redesign programs provides an excellent decision-making model for students.

O'Hare (1969) proposed that evaluation of guidance programs could be achieved by applying a learner-based evaluation procedure developed for classroom instruction to the guidance process. The procedure is composed of 3 parts. First, an investigator should attempt to evaluate the outcomes, that is, the specific student knowledge, skills or attitudes that are increased or diminished in students as a result of the program. Next, an informed selection of textual and other materials should be made, and thirdly, an attempt to match the efforts of counselors and teachers to student accomplishment of the objectives should be tried. That is, which specific practices produce which results?

Wellman and Gysbers (1971) likewise urged their fellow educators to assess outcomes that are stated in terms (usually behavioral) that permit measurement of specific student knowledge, skills, performance or attitudes. They suggested using baseline comparison group designs, within group designs, and experimental designs.

West (1971) called on university training program personnel, agency supervisory personnel, and practicing counselors to jointly specify counseling outcomes. He commented that until there is agreement among all these groups on what the purposes of counseling are, as well as what are realistic expectations for counseling, the field is likely to be very directionless and produce very little research that could actually affect practice.

Pulvino and Samborn (1972) described a communications system for planning and implementing guidance program activities. Five phases of accountability are discussed including: 1) dialogue with public, 2) joint development of measurable objectives, 3) counseling process, 4) evaluation, and 5) communication of evaluation results. They conclude that accountability is the natural result of utilization of these 5 steps. Accountability is defined by them to mean answering the question: "What difference did counseling processes make in the lives of the individuals with whom we worked?" Counselors by answering this question should be able to demonstrate their unique contributions to society.

Gubser (1974) presented guidelines developed by an Arizona task force for establishing objectives for counselors. It went further and made suggestions for the development of minimal performance standards for counselors and guidance programs.

Humes (1972) argued that the accountability movement can be a positive force in the guidance movement. Using criterion-referenced techniques should enable counselors to demonstrate the effects of their guidance practices. He called for the application of a Program Planning and Budgeting System (PPBS) management approach to guidance programs.

Kistler (1974) developed a model for teaching accountability skills to counselors and counselor trainees. He compared and contrasted both counselor education and educational administration accountability literature to define what counselors are to be held accountable for as well as how this could be measured. This accountability skills teaching model contains 8 phases: 1) theory and mission, 2) needs assessment, 3) management plan, 4) data collection, 5) data utilization, 6) data analysis,

7) professional development, and 8) system refinement. The objectives, learning activities, and outcomes of each phase as well as a required reading list are delineated in his study.

Smith (1974) also developed an 8 phase model but hers is for evaluation of student personnel work. After investigating actual practices of practitioners across the country and overviewing existing models of evaluation, she developed a model which she feels is able to accommodate a variety of philosophies, purposes, objectives and techniques. The 8 phases are: 1) pre-operational orientation and training, 2) assessment of environment and department of student personnel work, 3) assessment and definition of needs, 4) definition of product objectives, 5) definition and implementation of process objectives, 6) definition and implementation of appraisal techniques, 7) feedback, and 8) redefinition of components.

Krumboltz (1974) defined an accountability system which would collate counselor accomplishments with costs. In order to implement his ideas, practitioners would first have to define the domain of counselor responsibilities in concrete terms. They would further have to be willing to: use student behavior changes as evidence of their accomplishments, translate their activities into costs, be genuinely interested in self-improvement, and publish reports of failures and unknown outcomes. A sample accountability report gives examples of how costs could be estimated. The article ends with a call for experimentation to answer the practical implementation problems of the system.

In summary, 10 studies were found urging practicing counselors

to utilize some form of "outcome measures" to determine the efficacy of their programs. Each contains a slightly different model for practitioners to follow providing readers with a wide array of choices.

Reliability and Validity of Adolescent Self-Reports and Counselor Ratings

A review of the literature revealed that self reports of high school students have been used by a variety of investigators for a variety of purposes. In a recent comprehensive study Using Self-Reports to Predict Student Performance, Baird (1976) examined the literature for evidence of the concurrent and predictive validity of self-report information of students. His overall conclusion was that "the evidence suggests that one can believe and make decisions based on self-report information in a wide variety of areas as much as one can believe and use test information." (Baird, p 11) Self-estimates of ability seem to be fairly efficient predictors of academic performance. Furthermore, Baird concluded that the most efficient form of self-estimate is asking subjects to judge their relative standing in a group of their peers. He felt that most students should be able to do this quite well after 12 years experience with formal education. "Estimates of this type seem valid, and students appear to estimate their own ability correctly." (Baird, p 15) In addition he also found self-estimates of traits to be good predictors in a wide variety of areas besides academic performance. Self-ratings have been found to be better predictors than SAT scores, personality scales, interest scales and measures of student potentials of later accomplishment among diverse

groups of students. Examples of recent studies using self reports of high school students follows.

Cave (1973) correlated self-reported drug use of a 10 per cent sample of junior and senior high school students in the south Texas area with age, sex, ethnicity, family status, presence or absence of siblings, self-esteem, and the stability of self and peer group identification. Using the variable of drug orientation of the peer group as the dependent variable, he was able to obtain a residual path coefficient accounting for 92 per cent of the variance in the self-reported drug use of the adolescents.

Blackmore (1974) replicated a study of the relationship between self-reported delinquency and the official conviction records of 80 boys aged 14 to 17. Analysis of their responses to a questionnaire showed that just over 75 per cent of their known offenses were admitted in the questionnaire. Findings support the continued use of self report techniques as a measure of delinquent behavior.

Mobley (1974) studied high school students for delinquent behavior to try to establish homogeneous groups based on qualitatively different patterns of self-reports of delinquency. Further, he investigated whether or not, once these groups were defined, could they be differentiated according to the social and demographic variables thought to be associated with delinquency? The self-report data were BC try cluster analyzed to form the groups and then clusters were compared for social psychological variable difference. Twelve groups in all were formed, 8 groups of males and 4 groups of females. It was possible to form homogeneous groups based on patterns of self-reported delinquent

behavior. Groups overlapped in some delinquent behaviors and in some cases different patterns of behaviors seemed to serve different social psychological functions. A relationship was also found between age and patterns of behavior.

Deo and Sharma (1971) studied the relationship between self-concept and anxiety in a large population of North Indian adolescents. They administered a 69 statement self-concept inventory with a Likert scale. The respondents were instructed to answer each question twice, once for how they saw themselves now and again as they would like to be. Results show a linear relationship between self reported adjustment and the scores on the self concept inventory both in the positive and negative dimension and in the self-ideal discrepencies. Komiyama (1974) divided junior and senior Japanese high school students into a positive self-esteem and negative self esteem group according to their responses on a self report questionnaire. He found significant differences between the 2 groups in the expected direction for feelings for value systems, needs for everyday life, time perspective, satisfaction in every-day life, and basic mood.

Bradley (1974) studied the first semester college grade point average predictions of 56 high school counselors and classified them either as effective or ineffective predictors. All had previously been administered a personal questionnaire and the Eysenick Personality Inventory. Results show that female counselors were more effective than males, and that the 2 groups (effective predictors and ineffective predictors) differed on certain attitudes. Further, they report that effective predictors underestimated their predictive accuracy while

ineffective ones overestimated it. Finally, as cited earlier Wysong (1968) found a high positive correlation between student self-ratings of their own accomplishment of guidance program objectives and counselor ratings of the students' accomplishment of the objectives.

This section revealed that self-report data of high school students has shown strong evidence of both reliability and validity. Studies were found in a wide variety of settings. In contrast only 2 studies were found using high school counselor ratings of students.

Studies Using the Same Instruments

A review of the recent literature revealed that with the exception of the Westbrook (1974) study, no reports are available in which the Assessment of Career Development developed by ACT was utilized. According to the manual several studies are pending, however.

Ranson and others (1973) used the Iowa Test of Educational Development to assess the ability of 44 students in a career education competency curriculum to maintain expected academic competence. Two groups of 22 students each were compared to each other. One group began in September of 1972 and the other in January of 1973. Both groups took the ITED in February and then again in May. Test results indicated that students registered much greater competence in math than in reading, language, social studies, science or use of sources. However, during this semester the students' growth rate exceeded the expected growth rate in all areas except use of sources. No significant differences were found between the 2 groups, and whether students took the courses for credit or for enrichment had no effect on performance in

science, social studies and mathematics.

William Fitts, author of the Tennessee Self-Concept Scale which was first published in 1965, has participated in the production of the Dede Wallace Center Studies on the Self Concept and Rehabilitation Monograph Series. There are 7 monographs in this series all of which contain a multitude of studies which utilized the TSCS. The series limited itself to discussing only the results of the TSCS. Each of the 7 monographs of the series deals with a particular topical area and attempts to reveal the reliability and validity of the TSCS. Although each contains material that is relevant to the others, an effort was made to avoid repetition across the monographs. Monograph I, The Self Concept and Delinquency, (Fitts and Hamner, 1969) summarizes studies on the relationship between self concept and antisocial behavior and found significant relationships between TSCS scores and antisocial behavior. Monograph II, Interpersonal Competence: The Wheel Model contains no data presentation but elaborates in explicit detail the theory upon which the TSCS is based. Monograph III, The Self Concept and Self-Actualization (Fitts et al 1971), focuses in on behaviors that are characteristic of highly integrated persons and shows that TSCS scores can distinguish such persons. Monograph IV, the Self Concept and Psychopathology (Fitts 1972a) discusses the relationship between deviant behavior and self concept and again the TSCS was found to have predictive validity. Monograph V, the Self Concept and Performance (Fitts 1972b) investigates how people behave in a training or employment situation in relation to their self concept and found significant relationships between behavior and TSCS scores. Monograph VI, Correlates of the

Self Concept (Thompson 1972) presents a full range of studies showing how the TSCS correlates with other instruments in different populations. And finally Monograph VII, Self Concept and Behavior: Overview and Supplement (Fitts 1972c) attempts to discuss all studies published up until its publication that are not included in the other monographs. In summary then it is obvious that the research utilization of the TSCS is very extensive and that the TSCS has shown impressive evidence of both reliability and validity.

The Strong-Campbell Interest Inventory, the latest edition of the Strong Vocational Interest Blank, was developed by Campbell (1974) to introduce Holland's theoretical framework to the layout of the profile and interpretation of the scores. In addition Campbell merged the men's and women's forms into a single booklet. The manual reports many studies upholding the reliability and validity of this well known test, but this author found none which used the SVIB (or SCII) to measure outcomes of a high school guidance program.

Summary

A review of the literature related to the present study has been presented in terms of several general topics. This investigator found that 2 literature reviews on guidance program evaluation have been previously published, 1 in 1969 and the other in 1975. At the start of this decade, accountability became a strong movement on the educational scene. Evaluation research in school settings has become commonplace particularly with the aid of federal funding. Over 30 reports of extensive guidance program evaluation studies now appear in the literature.

practitioners can find a multitude of suggestions and models for conducting needs assessments, writing objectives, developing programs to match guidance procedures to specific objectives, and conducting both formative and summative evaluation studies.

This literature review reveals that utilizing self-reports of students in any attempts at evaluation of the effects of an educational program can be a worthwhile effort. Adolescent self-report data has been found to be generally accurate and useful in not only distinguishing 1 group of adolescents from another (e.g. drug users from non-users, delinquents from nondelinquents) but also in predicting future performance academically and otherwise. In contrast to an abundance of studies using adolescent ratings, only 2 studies which employed school counselor ratings of students were found and in both cases they proved to be useful.

The final section of this chapter surveyed studies in which the 4 normed instruments used in this study were also used.

CHAPTER III

RESEARCH DESIGN

This chapter will describe in detail the procedures of this study. First the setting and population are described. This is followed by a brief overview of all procedures that were implemented to obtain the data. Next all the instruments, both standarized and locally designed, are described in detail. This chapter also describes the rationale and steps that were followed in the calculation of each index of accomplishment. The final section of this chapter contains the statistical methods used to analyze the data.

This study attempts to compare and contrast the 3 methods of measuring accomplishment of guidance program objectives. The first 2 methods, student self-ratings and counselor ratings, are relatively simple when compared to the third method which has been labeled the "index of accomplishment." An index is defined by the dictionary to be a ratio or other number derived from a series of observations and used as an indicator or measure of a certain condition. The "condition" in this case is, of course, accomplishment of the objective. To create an index for an objective, it was taken literally and the question was asked, "If a student could really do what is stated in this objective, what would he do to prove it?" The answer to this question is obviously different for each objective, and hence each one has a specially tailored index made just for it. Some are simple scores on a test or questionnaire while others are the result of complex mathematical

calculations. Each index is a number which is supposed to indicate or define relative accomplishment of an objective.

Setting

Gordon Technical High School is a Catholic comprehensive boys' high school located on the largely Caucasian north side of Chicago. Gordon Tech currently has an enrollment of 2700 boys. The school was founded in 1952 with an enrollment of 302 and steadily expanded its student body and curriculum. From 1965 to 1973 extensive improvements were made and the curriculum expanded to 3 separate programs: college preparatory, trade school preparation, and a course of study preparing students for employment directly after high school.

Racially the school is 90 per cent Caucasian, 5 per cent Spanish-surnamed, 2 per cent Black, and 2 per cent Oriental. Thirty-eight per cent of the fathers are skilled laborers, 17 per cent are semi-professionals, 12 per cent are self-employed, 12 per cent are service workers, 10 per cent unskilled laborers and 4 per cent are professionals. The median income of the parents is about $18,000. Eighty-seven per cent of the boys are Catholics, 4 per cent are Protestant, and 8 per cent report having no religious affiliation.

Description of the Population

A stratified random sample of 100 senior boys from a class of 534 were selected proportionately to the number of students in the 3 tracks or ability levels of the school's curriculum. First the class rosters of all senior English classes (all seniors are required to take

English) were studied to determine the percentage of seniors in each of the tracks. One hundred and twelve or 21 per cent were in track 1, 293 or 55 per cent were in track 2, and 128 or 24 per cent were in track 3. In selecting the sample 21 students, 2 or 3 from each counselor's caseload, were taken from the track 1 class rosters; 55 students, approximately 6 from each counselor's caseload, were taken from the track 2 class rosters; and 24 students, approximately 3 students from each counselor's caseload, were taken from the track 3 class rosters. This sample is therefore very representative of the ability levels of the senior class and also of each counselor's caseload. Table 1 gives the I.Q. and grade point average breakdowns of each track.

Table 1

Student Population Sample

	N	Range of National Percentile Rank of I.Q. Scores*	Mean Percentile Rank I.Q.	Mean G.P.A. After Eight Semesters: 4 Point Scale
Track 3	21	51 - 97	75	3.4
Track 2	55	18 - 93	58	2.6
Track 1	24	4 - 76	46	2.4
Total	100		60	2.8

*STS High School Placement Test, 1/72

Table 2 shows that the future plans of the sample closely matched those of the entire senior class.

Table 2

Future Plans of Sample Population Compared to Entire Senior Class

Future Plans	N of Sample With this Plan	Percentage of Class with this Plan
Attend 4 year college	45	42
Attend 2 year college	21	21
Work full time	25	24
Join Armed Service	4	6
Undecided	5	7

The school's guidance department is staffed with 7 full time counselors, 1 half-time counselor and a guidance director with half a caseload of students which he splits with the half-time counselor. There are 9 counselors, then, in the department. Table 3 summarizes the relevant facts about the counselors. In general, they are all qualified and experienced professionals.

Table 3

School Counselor Sample (N=9)

Characteristic	Range	Mean
Age	26 - 52	35.6
Sex		9 males 0 females
Counseling Experience	1 - 15 yrs.	6 years
Degrees Held		8 Masters in Guidance and Counseling 1 Bachelors in Psycholog
Length of Tenure at School	1 - 15 yrs.	5 years

General Procedures

During homeroom period on April 23, 1976, the entire senior class was administered the Senior Self-Rating of Accomplishment of Guidance Program Objectives (see Appendix A, p 117). This questionnaire was designed by the investigator to have students indicate whether or not they feel they know, can do and/or have done what is specified in the objectives of the school's guidance program. This questionnaire constitutes the first alternative for measuring accomplishment of the objectives, the student self-report.

The day after the administration of the Senior Self-Rating, all 9 counselors in the guidance department independently filled out the Counselor Rating of Individual Student's Accomplishment of Guidance Program Objectives (see Appendix B, p 119) for each of their students in the sample population. The counselors filled these out without consulting the student directly, but they did consult all available guidance records. This scale constitutes the second alternative, the counselor ratings.

During the first week in May 1976, the sample, consisting of 4 groups of 25 seniors each, were instructed to report to an unused classroom over a 4 day period. Each student received a letter telling him to report to this classroom (See Appendix C, p 120) on either a Monday, Tuesday, Wednesday, or Thursday so that no more than 25 students were tested at one time. Each group of 25 was read the same directions (see Appendix D, p 121). All were then administered the same battery of questionnaires: the Academic Strengths and Weaknesses Checklist:

Self-Rating Form, the Tennessee Self Concept Scale, the Assessment of Career Development, the Strong Campbell Interest Inventory, the Questionnaire on Willingness to Discuss Personal Concerns, and the Occupations Ranking Scale.

Also during this first week in May, 1976, the Academic Strengths and Weaknesses Checklist: Observer Form was passed out to 3 of the sample students' current classroom teachers. Each student's schedule was examined and the first 3 teachers listed on it were selected. Forty-six different teachers were involved in rating the 100 students in the sample. Some teachers only had 2 or 3 students to rate while others had as many as 27 student to rate depending on how many senior classes they happened to be teaching.

The last instrument used in this study, the Rating of Adequacy of Student Course Program Scale, was filled out by 2 master's level counseling practicum students from Loyola University of Chicago.

The data generated by all these instruments (all that is except the Senior Self Rating and Counselor Rating scales) were converted into 1 index score for each objective. This index score constitutes the third method for measuring accomplishment of the objectives. Specific details for each of the instruments and for how each index was computed for each instrument are contained in the next 2 sections.

Table 4

Guidance Program Objectives

Academic Area

1. Each student will assess his academic strengths and weaknesses including his abilities, study habits, classroom attending behaviors, skill development, and motivation.

2. Each student will execute a course of studies relative to his assessment of his abilities, interests, values, and goals.

3. Each student will make plans to improve his academic performance if necessary.

Personal Area

4. Each student will identify his personal concerns.

5. Each student will form a positive self concept.

6. Each student will form satisfying interpersonal relationships with peers, family, teachers and others.

Career Area

7. Each student will gather career information from a variety of sources.

8. Each student will evaluate the career information in relation to his abilities, interests, and values.

9. Each student will develop and implement decision-making skills to formulate short and long range career plans.

Instruments

Table 5 on page 50 summarizes which instruments were used to measure achievement of each objective. It is helpful to refer to it when reading this section and the next one. Four normed instruments were administered to the students: the Iowa Test of Educational Development (ITED), the Tennessee Self-Concept Scale (TSCS), the Assessment of Career Development (ACD), and the Strong-Campbell Interest Inventory. In addition to these normed instruments administered to the students, the investigator designed several others that were filled out by the students, counselors, teachers, and 2 counseling practicum students. They are: the Senior Self-Rating of Accomplishment of Guidance Program Objectives, the Counselor Rating of Individual Student Accomplishment of Guidance Program Objectives, the Academic Strengths and Weaknesses Checklist: Self-Rating Form and Observer Form, the Rating of Adequacy of Student Course Program Scale, the Questionnaire on Willingness to Discuss Personal Concerns, and the Occupations Ranking Scale. Each will be discussed with respect to nature, construction and scoring procedures as well as their contribution in measuring an objective. Table 4 again lists the objectives so that the reader may refer to it in the ensuing discussion of the instruments.

Iowa Test of Educational Development

The ITED is intended to provide measures of educational development that are appropriate for all high school students, regardless of the specific curriculum they are following. The test content was dictated more by an evaluation of the general needs of the high school

graduate rather than by the specific material introduced in various advanced courses. (Science Research Associates, Inc. 1972)

The test consists of 344 questions in a multiple choice format covering reading, language arts, mathematics, social studies, science and use of sources. The student is required to show his ability to express himself clearly and correctly, to analyze critically materials of the type that educated adults encounter in their reading, and to deal with mathematical problems and concepts. The 6 skill areas are described in Appendix G, p 124.

This test is normally administered to all seniors each school year late in May for curriculum assessment purposes. It, therefore, did not have to be specially administered for this study. Five of the 6 skill area national percentile ranks were used for this study although they were first converted as follows: 90th percentile or higher = 4, 61st to 89th percentile = 3, 30th to 60th percentile = 2, and below 30th = 1. The conversion scores are meant to translate to top 10 per cent, above average, average, and below average respectively. These converted scores were compared to the students' self-ratings on the same 4 point scale on the same skills to help determine the accuracy of their self-ratings of their own skills and abilities (Objectives 1 and 8).

Tennessee Self-Concept Scale (TSCS)

The Tennessee Self Concept Scale was chosen as a self concept measure because it offers more than just 1 score and is capable of

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*All except social studies

helping measure both objectives 5 and 6. The various content areas of the test are well conceived and the Total Positive Score correlates very well with other well known measures, .70 with Taylor Manifest Anxiety Scale and up to .70 with some of the MMPI scales. The test items in the original pool were derived from surveys of the literature on self concept and from analyses of patient self-reports. The final items included only those which 7 clinical psychologists perfectly agreed fit within defined constructs. (Fitts, 1965) The Personal Self Scale is used to help measure objective 5, and the Family Self Scale and Social Self Scale are both used to help measure accomplishment of objective 6. These 3 scales measure and describe what the guidance department intended when it wrote these 2 objectives. One hundred items yield 12 scales of which 3 are used in this study. All scales are described in Appendix J, p 129.

Assessment of Career Development

The Assessment of Career Development (ACD) was chosen because it was developed by the American College Testing Program (ACT) expressly for the purpose of assessing the outcomes of career guidance programs. (American College Testing Program 1974). It is a very new instrument and has not yet been reported in the literature. The ACD focuses on core aspects of career development that can be economically and objectively measured through use of standardized group procedures. It does not claim to measure the psychological dimensions of vocational maturity or any other psychological constructs. The ACD resulted from the merging of 2 lines of research done by Westbrook and Crites (American College

Testing Program 1974). A content outline is described in Appendix K, p 133.

ACD results are reported for 11 scales and 42 specific questions as indicated in the outline. Of the 11 scales, 3 cover career-related knowledge and 8 cover career-related experiences. Four of the 11 scales are used in this study to help measure accomplishment of objectives 7 and 9. The Occupational Characteristics Scale tests for knowledge of a broad range of occupations distributed across all levels of education and/or training. Test items cover more than 200 occupations selected from each of 6 comprehensive occupational clusters. There are questions about duties, working conditions, and schedules and necessary worker attributes. The Occupational Preparation Requirements Scale tests for knowledge about the amount and type of training and/or education usually associated with various occupations. These 2 scales together are used to give an indication of just how extensive the students' knowledge of the world of work really is (objective 7).

The Career Planning Knowledge Scale and Career Planning Involvement Scale are both used to help measure accomplishment of objective 9, that is, the students' decision making skills. These scales cover basic career development principles, reality factors (labor market trends, availability of financial aid et cetera), the career planning process itself in addition to how involved the students were in exploratory planning experiences that are available in the school and community both on a formal and informal basis.

Strong-Campbell Interest Inventory

The SCII is the latest edition of the Strong Vocational Interest

Blank. A student's scores on the Occupational Scales of the SCII show how similar his interests and values are to the interests and values of people in occupations. Similar likes as well as dislikes are considered in computing these scores. A complete SCII Profile with explanation is contained in Appendix M, p 137.

Twelve of the Occupational Scale scores are used in this study to help determine how well a student is able to relate his values and interests to various occupations (objective 8.) The students were asked to rank order a list of these 12 occupations according to how suitable they felt they were for them, and then their rank orderings were compared to the rank order of their actual Occupational Scale scores on these same 12 occupations.

Senior Self-Rating of Accomplishment of Guidance Program Objectives

This locally designed instrument constitutes the first method of measuring accomplishment of the guidance program objectives. It was designed by the investigator to have students indicate whether or not they feel they know, can do and/or have done what is specified in the objectives of the school's guidance program. It consists of 9 questions which are essentially a rephrasing of each objective in question form. Students responded on a 4 point scale. A copy is contained in Appendix A, p 117.

Counselor Rating of Individual Student Accomplishment of Guidance Program Objectives

This locally designed instrument (see Appendix B, p 119) constitutes the second method of measuring accomplishment of the guidance program objectives. It was designed by the investigator to have the counselors

indicate whether or not they feel their assigned students in the sample know, can do, and/or have done what is specified in the objectives of the school's guidance program. It too consists of 9 questions which are essentially a rephrasing of each objective in question form. The counselors responded on the same 4 point scale that the students did.

Academic Strengths and Weaknesses Checklists: Self-Rating and Observer Forms

These 2 rating scales were designed by the investigator to help measure accomplishment of the first objective. The self-rating form asks the students to rate themselves on a 4 point scale on 14 different skills and abilities thought to be necessary for academic success. Part I consists of 9 skills including paying attention, taking notes, doing homework preparing for classes, participating in discussions, asking questions, preparing for tests, and overall motivation to achieve. Part II consists of 5 of the 6 skill areas tested with the ITED (see page 42). A copy of this scale is contained in Appendix E, p 122. The observer form was filled out by classroom teachers (3 for each student) who were asked to rate the students on the same 9 skills that make up Part I of the self rating form. See Appendix F for a copy of this scale.

To help determine how accurately the students were able to assess their academic strengths and weaknesses (objective 1), the students' self-ratings on Part I were compared to the mean of the 3 teachers' ratings on the observer form and to the students' converted ITED scores (see page 43) for Part II.

Rating of Adequacy of Student Course Program Scale

In order to measure accomplishment of objective 2, that students made wise course selections, a determination that a student's course selections match his abilities, interests and values had to be made. This rating scale was designed by the investigator for outside objective observers to review a student's course selections in relation to his school guidance records and then decide on a 4 point scale the extent to which they felt each student's course selections matched his abilities, interests and values. Two university master's level counseling practicum students were trained regarding the following: the school's curriculum and weighted grading system and the standardized test scores in the guidance file. They independently reviewed each student's file and made a tentative rating. When they agreed (85 out of 100 times), they filled out the rating scale. If they disagreed, they discussed their differences until they did agree on a rating. A copy of this scale is contained in Appendix H, p 125.

Questionnaire on Willingness to Discuss Personal Concerns

This is a locally-designed attitude scale to help measure objective 4; that is the degree to which students are willing to self disclose personal problems and concerns to school personnel. The faculty fosters an attitude in students that the adults do care and can and will help them with their personal concerns. To determine if this attitude is prevalent, a comprehensive list of 50 different problems of a personal and interpersonal nature was developed. Examples include being too nervous, being bothered by sexual matters, learning to be more comfortable in talking with others, and getting along with parent(s) better.

Students are asked to indicate whether or not they would be willing to discuss these problems with some adult at the school (not necessarily a counselor.) Answers are arranged on a 4 point scale: yes - definitely, probably, maybe, and no - never. A copy is included in Appendix I, p 126.

Occupations Ranking Scale

The Occupations Ranking Scale contains 12 occupational titles from the Occupation Scales of the SCII (2 from each of the 6 general occupational themes of Holland) listed in a column (see Appendix L, p 136. The students are asked to rank order them according to how suitable they are to their interests and values. A ranking of 1 indicates that of the 12 occupations listed, the student feels that this 1 matches his interests and values the best. This scale is used to help measure objective 8, that is, students can effectively relate themselves to careers. The rank order produced by this scale is compared to the rank order of the students' scores on the Occupations Scales of the SCII (see page 45).

The next section contains a clarification of each objective followed by a precise description of how each index was computed. The rationale for each index is also included.

TABLE 5

SUMMARY OF COMPUTATION OF INDICES OF ACCOMPLISHMENT

Obj.	Brief Description of Objective	Instruments Used To Measure	Specific Scales (if applicable)	Formula*
1	Accuracy of Self-Assessment	Ac St & Wk Ck: Slf Rting Frm Ac St & Wk Ck: Obsvr Frm	Reading, language, math, science, use of sources	$100\ 1-\frac{\sum_{i=1}^{m} T_{ij}-S_{ij}}{d_{max}.m}$
2	Appropriateness of Course Selection	Rating of Adequacy of Student Program Scale		rating on 4 point scale
3	Achievement Commensurate With Ability			actual GPA — Predicted GPA
4	Willingness to Self-Disclose	Questionnaire On Willingness To Discuss Personal Concerns		$\frac{\text{raw score}}{50}$
5	Intrapersonal Self Concept	Tennessee Self Concept Scale	Personal Self Scale	raw score of PSS
6	Interpersonal Self Concept	Tennessee Self Concept Scale	Family Self Scale Social Self Scale	$\frac{\text{raw score FSS} + \text{raw score SSS}}{2}$
7	Knowledge of Careers	Assessment of Career Development	Occupational Preparation Requirements Scale Occupational Characteristics Scale	$\frac{\text{national percentils ranks of OPRS + OCS}}{2}$
8	Ability to Relate Self To Careers	Strong-Campbell Intst Invent. Occupations Ranking Scale Iowa Test of Educt. Devlpt.	Engineer, accountant, rec. leader, lawyer, photographer, craftsmen, dept. store manager, medical tech, police, advt. exec., realtor, banker	$\frac{\text{rank order coefficient} + \text{ability rating accuracy score}}{2}$
9	Decision Making Ability	Assessment of Career Development	Career Planning Knowledge Scale Career Planning Involvement Scale	$\frac{\text{national percentile ranks of CPKS + CPIS}}{2}$

*A complete explanation of each formula is contained in the next section.

Computation of the Index of Accomplishment for Each Objective

Objective 1: Each student will assess his academic strengths and weaknesses including his abilities, study habits, classroom attending behaviors, skill development, and motivation.

Students need to develop the ability to "take stock of" their strong and weak points. Accomplishment of this objective means that a student has made an accurate estimate of his abilities, the adequacy of his study habits, classroom attending behaviors, and basic skill development as well as his overall motivation. In order to ascertain accomplishment of this objective, 3 things must be defined: 1) the student's perceptions of his own strengths and weaknesses, 2) the "real" strengths and weaknesses of the student, and 3) the relationship between the student's own perceptions and the "real thing."

To determine the students' perceptions of his own strengths and weaknesses, students were administered the Academic Strengths and Weaknesses Checklist: Self-Rating Form on which the student rated himself on 14 abilities and skills across a 4 point scale. These self-ratings were compared to his teachers' ratings covering the first 9 items (Observer Form) and his converted ITED scores for the last 5 times (see page 54 for a definition of the converted scores). The "real" strengths and weaknesses, then, are defined as the mean of the teachers' ratings and the converted ITED scores. If the student has made a thorough assessment of his academic strengths and weaknesses, his self ratings

of these should correspond significantly with his teachers' ratings of skills and behavior in the classroom and his scores on a standardized test. The differences between his self ratings and his teachers' ratings and scores are considered to be an indication of just how accurate his assessment of himself is. Obviously the greater the difference between the 2 sets of data, the less accurate the student's self assessment is considered to be. The signs of the differences (i.e. whether the student overestimated or underestimated) are dropped because they are not considered relevant in measuring accomplishment of this objective. This is not to say that they are not important, however, from a counseling point of view. But in measuring accomplishment of this objective only the degree to which a student's self estimates correspond to more objective determinations is considered.

In summary, the following steps were followed in computing the index of accomplishment for objective 1:

1st - Students filled out the Academic Strengths and Weaknesses Checklist: Self Rating Form (Appendix E).

2nd - Three of the students' current classroom teachers independently filled out the Academic Strengths and Weaknesses Checklist: Observer Form (Appendix F).

3rd - The mean of the 3 teachers' ratings was compared to the students' self ratings for each of the items or questions on part I of the checklist, and the students' converted ITED* scores were compared to the students'

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*ITED administered to entire senior class for curriculum assessment in May every year.

self-ratings for each of the items on part II of the checklist. Differences between self-ratings and teachers' ratings for part I and self-ratings and converted ITED scores for part II were computed.

4th - The index was then computed for each student using the formula:

$$\underline{\text{Index}} \text{ for subject } j = 100\left[1 - \frac{\sum_{i=1}^{m} |T_{ij} - S_{ij}|}{d_{max} \cdot m}\right]$$

where m = number of items on scale (14)

T_{ij} = mean of teachers' ratings for i = 1 to 9 and converted ITED scores for i = 10 to 14

S_{ij} = self ratings for each of the items

d_{max} = maximum possible difference between T and S (since the ratings are done on a 4 point scale $d_{max} = 3$)

Objective 2: Each student will execute a course of studies relative to his assessment of his abilities, interests, values and goals.

Students are encouraged and aided to select courses on a matching ability level that also serve to broaden their interests and help them define their values and goals. In order to measure accomplishment of this objective, outside objective raters were utilized. Two local university master's level counseling practicum students were trained and informed about the school's curriculum, standardized test scores in the guidance file, and the school's weighted grading system. In addition to standardized test scores, the guidance file contained a student's course selections for 4 years of high school, a report from his grade school, the results of a vocational interest survey, all

grades, an information record of each student's career choices and counselor anecdotal notes.

The 2 practicum students proceeded as follows. First they independently reviewed a student's file and made a tentative rating on the Rating of Adequacy of Student Program Scale. Next they compared ratings for each student. If both ratings were the same (this was true in 85 of the 100 cases), then this rating became final. If they disagreed they discussed their differences until they did agree on 1 rating. Accomplishment of this objective was defined as a matter of professional judgment, and trained master's level practicum students were considered by the investigator to have been as professional and objective as was required. In summary, the following steps were followed in computing the index of accomplishment for objective 2:

1st - Two trained outside objective raters (local university practicum students) compared each student's course selections for his 4 years of high school to the information available in the guidance file.

2nd - Raters filled out the Rating of Adequacy of Student Course Program Scale (Appendix H).

Index = rating of outside raters on the 4 point scale.

Objective 3: Each student will develop plans to improve his academic performance if necessary.

This objective follows from the first 2 academic objectives and must be viewed in this context. The guidance program encourages students to first assess their academic strengths and weaknesses and then choose courses that will best meet and match their needs. Students are then

further encouraged to perform to the best of their abilities in these courses. Students identified as not performing to the best of their abilities are singled out by counselors and teachers and encouraged to again analyze what it is that they are doing or not doing that is causing them not to perform better, that is, get better grades. Once the "problem" is defined then students are further encouraged to develop a plan or strategy to improve their grade or grades. Hence, in the wording of the objective it would be necessary for a student to make plans to improve his academic performance if it was not commensurate with his abilities. Perhaps a more traditional way of stating this objective would have been to write, "students will achieve at a level commensurate with their abilities." However, the school's guidance department deliberately avoided stating it in this manner to emphasize the point with students that their grades are for the most part earned by them and are directly related to how well they pay attention in class, do homework, study for tests and so on.

In order to assess this objective, some objective determination of a student's ability had to be used so that actual academic performance could be compared to it. Scores from the students' I.Q. examination* taken when they applied for admission to the school in January of their eighth grade were used to define each student's ability. Then his cumulative grade point average for 4 years of high school (8 semesters) was correlated with these I.Q. scores. The Pearson product-moment correlation equaled 0.46. To get an index score for this objective, a simple

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*STS High School Placement Test, Scholastic Testing Service, administered in January, 1972.

regression analysis was performed between I.Q. national percentile rank and final high school grade point average. This yielded a grade point average predicted from I.Q. score. If the predicted grade point average equals or exceeds the actual grade point average, then it was assumed that the student was always able to implement a plan for achieving to his potential. The index of accomplishment for this objective, then, was the actual grade point average minus the predicted grade point average. Comparing a student's final eighth semester cumulative grade point average to his grade point average as predicted from his I.Q. national percentile rank revealed how closely he was able to perform to his measured potential.

To summarize, the following steps were taken in computing the index of accomplishment for objective 3:

1st - A simple regression analysis was performed between national percentile rank of I.Q. and eighth semester cumulative GPA to yield a predicted GPA using the following formula:

$Y' = a + bx$ where Y' = predicted GPA; $a = 1.88$;

$b = 0.014$; and x = national percentile rank of I.Q.

2nd - The differences were found between the actual GPA and the predicted GPA.

Index = Actual GPA - Predicted GPA

Objective 4: Each student will identify his personal concerns.

In order to be able to help students with personal problems, the school personnel (teachers, counselors, and administrators) must know what they are which means that the students must feel free and comfortable in bringing them up or identifying them to the personnel. An

essential part of the guidance program at this school, then, is public relations with the students. The school personnel seek to establish a school climate characterized by mutual trust and respect between faculty and students so that students will feel free enough to discuss their personal concerns with someone when or if the need arises. In other words, the school tries to foster an attitude in students that the adults do care and can and will help them with their personal concerns. To determine if this attitude is prevalent would be to also measure accomplishment of this objective.

A questionnaire (Questionnaire on Willingness to Discuss Personal Concerns, Appendix I) was prepared. It consists of a comprehensive list of 50 different problems of a personal and interpersonal nature such as: being too nervous, being bothered by sexual matters, and getting along with parents better. Students are asked to indicate whether or not they would be willing to discuss them with some adult (not necessarily just a counselor) at school. The higher the score on the questionnaire, the more willing the student is to talk and seek help at school for personal and/or interpersonal problems and concerns. The main focus and emphasis of this objective is on creation of an attitude in the student body.

In summary, the following steps were taken in computing the index of accomplishment for objective 4:

1st - Questionnaire on Willingness to Discuss Personal Concerns was administered to students.

2nd - Responses for each question were totaled.

Index = total raw score of questionnaire.

Objective 5: Each student will form a positive self-concept.

A student with a positive self concept is defined here to mean a student with a sense of personal worth, feelings of adequacy as a person and feelings of satisfaction with his own personality apart from his body and relationship to others. The Tennessee Self Concept Scale's Personal Self sub-scale defines just this. Hence this sub-scale was used as the index of accomplishment for this objective.

Index = raw score of Personal Self Scale of the Tennessee Self-Concept Scale.

Objective 6: Each student will form satisfying interpersonal relationships with peers, parents, family, teachers, and others.

This objective is stated in terms of what is satisfying for the student's interpersonal life. Therefore, a self report measure is appropriate. "Satisfying interpersonal relationship" is defined here to mean that a student has feelings of adequacy, worth, and value as a family member and in his social interaction with other people in general, including peers and teachers. The Family Self and Social Self Scales of the Tennessee Self Concept Scale measure just this. Hence a combination of these 2 sub-scales was used as the index of accomplishment for this objective.

Index = (raw score of Family Self Scale + raw score of Social Self Scale) $\div$ 2

Objective 7: Each student will gather career information from a variety of sources.

If students are to make wise career choices, they should have a

general knowledge of a broad spectrum of jobs and what is required to be employed. The school's guidance program attempts to encourage students to learn about different careers and career requirements by maintaining occupational files, and reference books in a special section of the library, encouraging teachers to discuss the career implications of their courses, inviting in guest speakers, sponsoring field trips, work-study programs and so on. Through these and other activities it is hoped that students will develop a broad general knowledge of occupational characteristics and requirements.

The Assessment of Career Development developed by the American College Testing Program has 2 scales which are applicable to this objective. The Occupational Characteristics Scale tests for knowledge of a broad range of occupations distributed across all levels of education and/or training, and the Occupational Preparation Requirements Scale tests for knowledge about the amount and type of training and/or education usually associated with various occupations. The percentile scores of these 2 scales are combined in the computation of the index for this objective. Percentile scores are used instead of raw scores (as in the TSCS) because the scales have different numbers of items. Percentile scores equalize the contributions of each scale to the index.

Index = (national percentile rank of Occupational Preparation Requirements Scale + national percentile rank of Occupational Characteristics Scale) ÷ 2

Objective 8: Each student will evaluate the career information in relation to his abilities, interests, and values.

In addition to gaining knowledge about jobs and job requirements, the student must also learn how "suitable" various careers are for him and how "suitable" he is for various careers given his abilities, interests, and values. The student, therefore, needs to have a thorough knowledge of himself and the world of work but beyond this, he must also be able to relate and match one to the other. This ability or facility to relate and match oneself with different jobs is the essence of this objective.

In order to ascertain accomplishment of this objective, students were asked to review a list of 12 occupations covering a wide range of interests (see Occupations Ranking Scale, Appendix L). There are approximately 2 occupations from each of Holland's (1973) 6 types: police officer and skilled craftsman (realistic), engineer and medical technician (investigative), advertising executive and photographer (artistic), recreation leader (social), lawyer, realtor, and department store manager (enterprising), and banker and accountant (conventional). They were asked to rank order them according to how suitable they thought they were to their interests and values, that is, how well each matched them. Students also took the Strong-Campbell Interest Inventory. Their scores on the Occupational Scales of the SCII were examined and were used to provide a second rank ordering of these same occupations. A Spearman rank-order coefficient of correlation between each student's rank order as determined by the SCII and his own rank ordering on the Occupations Ranking Scale was computed. This rank order coefficient of correlation is only half of the index of accomplishment for this objective however.

In addition to being able to match oneself to occupations on an interests and values' dimension, this objective also states that students

must be able to relate their abilities to career information. This requires that they have an accurate concept of what their abilities are. The method used for determining the accuracy of their concept of their abilities is exactly the same as the one used in Objective 1. (see page 51) For this objective, however, only part II of the Academic Strengths and Weaknesses Checklist: Self-Rating Form which compares student self-ratings with ITED scores, is used. The resultant "ability rating accuracy score" is added to the rank order coefficient in computing this index for this objective.

In summary, the following steps were taken in computing the index of accomplishment for objective 8:

1st - Students rank ordered a list of 12 representative occupations from the Occupational Scales of the Strong-Campbell Interest Inventory in order of how suitable they felt they were for them (Occupations Ranking Scale).

2nd - Students were administered the SCII.

3rd - A Spearnan rank-order coefficient of correlation was computed between a student's rank order as determined by the SCII and his own rank order on the Occupations Ranking Scale.

4th - An "ability rating accuracy score" was computed for each student using the following formula:

$$\text{Accuracy Score for subject } j = 1 - \left[\sum_{i=1}^{m} \frac{|I_{ij} - S_{ij}|}{d_{max} \cdot m} \right]$$

where m = the number of abilities (5)

I_{ij} = converted ITED scores

S_{ij} = self-ratings from part II of the self rating form of the Academic Strengths and Weaknesses Checklist

d_{max} = maximum possible difference between I and S (since the ratings are done on a 4 point scale $d_{max} = 3$)

Index = (Rank Order Coefficient + Ability Rating Accuracy Score) $\div 2$

Objective 9: Each Student will develop and implement decision making skills to formulate short and long range career plans.

Giving the students the know-how and practice to make decisions will help them establish what they will do immediately after graduation from high school and ultimately what career they will enter. The guidance department seeks to give students knowledge of basic career development principles, reality factors (labor market trends, availability of financial aid et cetera), and the career planning process itself. The department also seeks to involve students in exploratory planning experiences that are avilable in the school and community both on a formal and informal basis. This objective has both a knowledge and action component.

Two scales from the Assessment of Career Development, which was discussed previously, are used to measure accomplishment of this objective: the Career Planning Knowledge Scale and the Career Planning Involvement Scale. These 2 scales attempt to measure and describe what the guidance department intended when it wrote this objective. Percentile scores are utilized instead of raw scores to equalize the contribution of each scale to the index.

Index = (national percentile score of Career Planning Knowledge Scale + national percentile score of Career Planning Involvement Scale) $\div 2$

Data Analysis

The students' self-ratings, counselor ratings, and indices of accomplishment for each objective (27 variables in all) were examined using the Statistical Package for the Social Sciences (Nie et al 1975). Means and standard deviations, a paired sample t-test, Pearson product-moment correlations, canonical correlations, and a factor analysis were generated.

A t-test for paired samples was performed to determine if there were differences between the self-ratings and counselor ratings for each of the 9 objectives.

Canonical correlations were performed between the self-ratings and indices of accomplishment, the counselor ratings and indices of accomplishment, the self-ratings and counselor ratings, and the combined self- and counselor ratings and indices of accomplishment for each of the 9 objectives to determine if there were significant canonical correlations between each of the 4 pair lists of variables.

A correlation matrix of all 27 variables was prepared and labeled the multiobjective-multimethod matrix. This matrix was examined for evidence of convergent and discriminant validity of the objectives according to the 4 criteria established by Campbell and Fiske (1959). Initially, the first 2 criteria are applied to the 3 heteroobjective-heteromethod blocks (correlation matrices of self-ratings with indices, counselor ratings with indices, and self-ratings with counselor ratings) of the multiobjective-multimethod matrix individually to determine if the pairs of methods are interchangeable for measuring each of the

objectives. Then all 4 criteria are applied to the entire matrix. The first criteria is that a monoobjective-heteromethod correlation value (a value resulting from the correlation of 2 different methods but of the same objective e.g. self- and counselor ratings of objective 1) should be significantly different from zero and significantly large enough to warrant further investigation. The second criteria is that a monoobjective-heteromethod value for any given objective should be higher than the correlations obtained between that objective and any other variable having neither objective nor method in common. Thirdly, a variable should correlate higher with an independent effort to measure the same objective than with measures designed to get at different traits which happen to employ the same method. Fourthly, the last criteria is that the same pattern of trait interrelationship be shown throughout the matrix.

An additional examination of discriminant validity was provided by a factor analysis of the 27 variables.

This chapter has included a description of the sample population, the instruments, methods and procedures followed in obtaining and processing the data. Chapter IV will present and evaluate the results generated by data analysis.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter reports: the findings obtained through the administration to a stratified random sample of 100 high school senior boys from 3 tracks or ability levels of the Senior Self-Rating of Accomplishment of Guidance Program Objectives; the findings obtained through the administration to 9 high school counselors of the Counselor Rating of Individual Student's Accomplishment of Guidance Program Objectives; and the computed indices of accomplishment for each of the 9 guidance program objectives (see Chapter III, pages 51 through 62 for details on the method of computation for each objective). This chapter will contain the following sections: Self-Ratings, Counselor Ratings, and Indices of Accomplishment of the Guidance Program Objectives, Differences Between the Self-Ratings and Counselor Ratings, Investigation of the Null Hypotheses Using Canonical Correlations, Relationship Between the Self-Ratings and Indices of Accomplishment, Relationship Between the Counselor Ratings and Indices of Accomplishment, Relationship Between the Self-Ratings and Counselor Ratings, Summary of Evidence of Convergent and Discriminant Validity in the Multiobjective-Multimethod Matrix, and Further Examination of Discriminant Validity Using a Factor Analysis.

Self-Ratings, Counselor Ratings and Indices of Accomplishment of the Guidance Program Objectives

The overall profiles of the different methods of assessing the objectives are presented on the next 3 pages. A brief description of

TABLE 6

SELF-RATINGS

Objective Number	Brief Description of Objective	Possible Range	Actual Range	Mean	S.D.
1	Accuracy of Self-Assessment	1 - 4	1 - 4	3.05	0.66
2	Appropriateness of Course Selections	1 - 4	1 - 4	3.04	0.83
3	Achievement Commensurate with Ability	1 - 4	1 - 4	2.52	0.75
4	Willingness to Self-Disclose	1 - 4	1 - 4	2.39	0.90
5	Intrapersonal Self-Concept	1 - 4	1 - 4	3.11	0.71
6	Interpersonal Self-Concept	1 - 4	1 - 4	3.16	0.71
7	Knowledge of Careers	1 - 4	1 - 4	2.35	0.70
8	Ability to Relate Self to Careers	1 - 4	1 - 4	2.90	0.73
9	Decision Making Ability	1 - 4	1 - 4	2.58	0.74

TABLE 7

COUNSELOR RATINGS

Objective Number	Brief Description of Objective	Possible Range	Actual Range	Mean	S.D.
1	Accuracy of Self-Assessment	1 - 4	1 - 4	3.04	0.79
2	Appropriateness of Course Selections	1 - 4	1 - 4	3.25	0.67
3	Achievement Commensurate with Ability	1 - 4	1 - 4	2.82	0.88
4	Willingness To Self-Disclose	1 - 4	1 - 4	3.16	0.81
5	Intrapersonal Self-Concept	1 - 4	1 - 4	2.84	0.76
6	Interpersonal Self-Concept	1 - 4	1 - 4	2.98	0.62
7	Knowledge of Careers	1 - 4	1 - 4	2.43	0.91
8	Ability to Relate Self to Careers	1 - 4	1 - 4	2.80	0.83
9	Decision Making Ability	1 - 4	1 - 4	2.37	0.93

TABLE 8

INDICES OF ACCOMPLISHMENT

Objective Number	Brief Description of Objective	Possible Range	Actual Range	Mean	S.D.
1	Accuracy of Self-Assessment	0 - 100	51.6-89.7	76.5	7.7
2	Appropriateness of Course Selections	1 - 4	1 - 4	2.89	1.05
3	Achievement Commensurate with Ability	(-3)-(+3)	-1.3-(+1.2)	0.04	4.9
4	Willingness to Self Disclose	1 - 4	1 - 4	2.16	0.63
5	Intrapersonal Self-Concept	1-99	40-85	64.3	8.23
6	Interpersonal Self-Concept	1-99	50-85	64.3	7.53
7	Knowledge of Careers	1-99	1-99	59.8	25.62
8	Ability to Relate Self to Careers	0 - 1	.17-.82	0.54	0.15
9	Decision Making Ability	1-99	11-97	55.5	21.84

each objective is included in each table. Tables 6, 7, and 8 show that each of the methods used seemed to achieve a wide range of responses and at first glance appears to be able to differentiate accomplishment of one objective from another. In all cases higher numbers indicate higher achievement of the objectives.

Differences Between the Self-Ratings and Counselor Ratings

Since both self-ratings and counselor ratings are on the same ordinal scale, it is useful to compare them. Tables 9 and 10 show that the mean values are significantly different for all the objectives except numbers 1, 7 and 8. The 2 measures also correlate significantly for these objectives. Both counselors and students tend to closely estimate the accuracy of the students' self-assessments, knowledge of careers, and ability to match themselves to careers.

The remaining 6 objectives fall into 2 distinct groups. The first group is composed of objectives 2, 4, and 5. They have significantly different mean values and do not correlate significantly with each other. The mean counselor ratings are higher than the mean student ratings for objectives 2 and 4. It seems that counselors rate the appropriateness of the students' course selections and students' willingness to discuss personal concerns significantly but not consistently higher than the students do. On the other hand, counselors rate students' intrapersonal self-concepts (objective 5) significantly but not consistently lower than the students do.

The second group is composed of objectives 3, 6, and 9. They have significantly different mean values but at the same time correlate significantly with each other. It appears that counselors tend to consistently rate students' achievement higher than the students do (objective 3) and that students consistently rate their interpersonal self-concept (objective 6) and decision-making ability (objective 9) higher than the counselors do.

Since each index of accomplishment, Table 8, is computed on its own unique scale, it is impossible to compare their values to the self and counselor ratings at this point in the discussion. Correlations were performed among each of the 3 methods and these results are reported in the upcoming sections.

TABLE 9

SELF-RATINGS AND COUNSELOR RATINGS

T-TEST (d.f.=99)

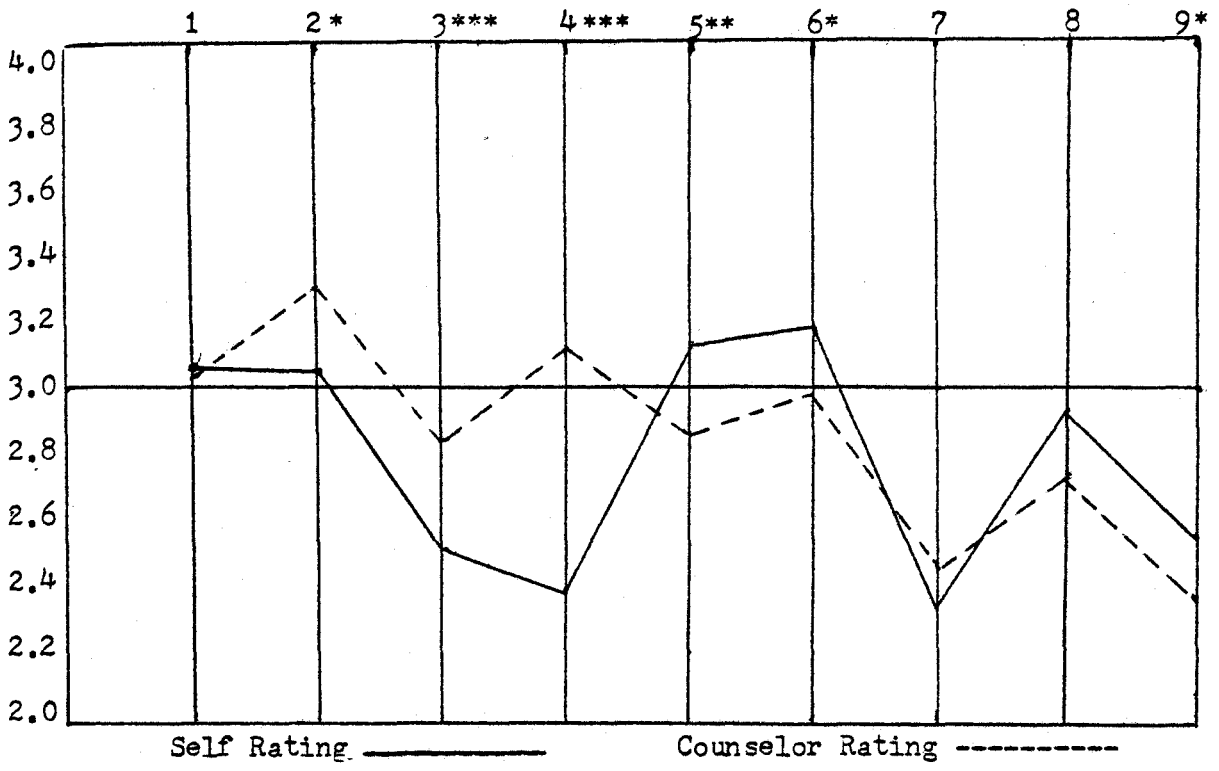
Variable	Mean	S.D.	Difference	T Value[1]	Correlation[2]
Self-1	3.05	0.66	0.01	0.12	.346***
Coun-1	3.04	0.79			
Self-2	3.04	0.83	-0.21	2.01*	.036
Coun-2	3.25	0.67			
Self-3	2.52	0.75	-0.30	3.65***	.498***
Coun-3	2.82	0.88			
Self-4	2.39	0.89	-0.77	6.78***	.121
Coun-4	3.16	0.81			
Self-5	3.11	0.71	0.27	2.81**	.145
Coun-5	2.84	0.76			
Self-6	3.16	0.71	0.18	2.42*	.377***
Coun-6	2.98	0.62			
Self-7	2.35	0.70	-0.08	0.88	.382***
Coun-7	2.43	0.90			
Self-8	2.90	0.07	0.10	1.15	.383***
Coun-8	2.80	0.83			
Self-9	2.58	0.74	0.21	2.04*	.258**
Coun-9	2.37	0.93			

[1]two-tailed test
[2]one-tailed test

* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 10

COMPARISON OF MEAN SELF AND COUNSELOR RATINGS



1 = Accuracy of Self Assessment

2 = Appropriateness of Course Selections

3 = Achievement Commensurate with Ability

4 = Willingness to Self-Disclose

5 = Intrapersonal Self Concept

6 = Interpersonal Self Concept

7 = Knowledge of Careers

8 = Ability to Relate Self to Careers

9 = Decision Making Ability

* $p < .05$

** $p < .01$

*** $p < .001$

Investigation of the Null Hypotheses Using Canonical Correlations

A canonical correlation analysis is performed to derive a linear combination from 2 sets of variables in such a way that the correlation between the 2 linear combinations is maximized. Many such pairs, called canonical variates, of linear combinations may be derived. The object of this procedure is to account for a maximum amount of the relationship between 2 sets of variables. Therefore, if significant canonicals are found between 2 sets of variables, it can be concluded that a significant relationship exists between them.

Canonical correlations were performed to test the following statistical null hypotheses:

1. There are no significant canonical correlations between the self-ratings and indices of accomplishment.

2. There are no significant canonical correlations between the counselor ratings and indices of accomplishment.

3. There are no significant canonical correlations between the self-ratings and counselor ratings.

4. There are no significant canonical correlations between the combined self- and counselor ratings and the indices of accomplishment.

All 4 null hypotheses were able to be rejected. Four significant canonical correlations were found between the self-ratings and the indices. Three were significant at the 0.001 level and 1 at level 0.025. Two significant canonical correlations were found between the counselor ratings and the indices. One was significant at the 0.001 level and 1 at level 0.006. Three significant canonical correlations

were found between the self-ratings and the counselor ratings. Two were significant at the 0.001 level, 1 at level 0.047. Lastly, 4 significant canonical correlations were found between the combined self- and counselor ratings and the indices. Three were significant at the 0.001 level and 1 at level 0.002. A complete presentation of these results is found in Appendix N, p 140.

Summarizing the above discussion to this point, results of the student self-ratings and counselor ratings were presented, compared and contrasted. The indices of accomplishment were also presented but not discussed yet in detail nor compared to the self and counselor ratings because they are computed on numerical scales which are quite distinct. Discussion of the indices has been saved for the upcoming sections. In addition, significant canonical correlations were found between 4 sets of the 27 variables.

The Multiobjective-Multimethod Matrix

This section of the chapter discusses the correlation matrices showing the amount of shared variance among each of the 3 methods. The major questions of this study are: can the simpler self-ratings and/or counselor ratings methods of assessing accomplishment of the guidance program objectives adequately substitute for and replace the much more expensive, cumbersome and time consuming computed indices of accomplishment? Are the self- and counselor ratings as valid indicators of accomplishment of the guidance program objectives as the indices are? Validity will be represented by the degree of agreement between 2 attempts to measure the same objective through the different

methods. In examining these correlation matrices, the discussion will be guided by the now classic study of Campbell and Fiske(1959). In their Psychological Bulletin article, they set down requirements for establishing the validity of independent measures of the same trait (or in this study objective). When comparing 2 or more methods for measuring the same trait and trying to decide if these independent methods are really measuring the same trait, the following 2 criteria must be met.

First, the entries in the validity diagonal (see Table 11: the validity diagonal is the hypotenuse of the triangles made up of the monoobjective-heteromethod values) should be significantly different from 0 and sufficiently large enough to encourage further examination. The question that must be asked for purposes of this study is: How large is "sufficiently large enough to encourage further examination?" This is not unlike the question, "How high is up?" A correlation of .50 or higher seems to be an appropriate criterion when used for research purposes. Therefore, in order for 1 measure to substitute for another measure for purposes of assessing general overall program outcomes, they must correlate with each other .50 or higher. In addition, for 1 method to substitute for another in assessing accomplishment of a specific objective for a specific individual, they probably should correlate with each other .80 or higher.

The second criterion is that the entries in the validity diagonal (hypotenuse) should be higher than the values lying in its column and row. That is, a validity value (a correlation between 2 independent attempts to measure the same objective) for an objective should be

higher than the correlations having neither objective nor method in common.

Relationship Between Self-Ratings and Indices of Accomplishment

Table 11 presents the correlations between the self-ratings and indices of accomplishment for all 9 objectives.

TABLE 11

CORRELATIONS BETWEEN SELF-RATINGS AND INDICES OF ACCOMPLISHMENT

		Self Ratings								
Objective		1	2	3	4	5	6	7	8	9
Indices	1	.11	.09	.29	.13	-.08	.02	-.10	.03	-.12
	2	.29	.17	.28	-.13	.19	.09	.30	.21	.16
	3	.26	.07	.44	-.01	.16	.07	.32	.26	.24
	4	-.08	.04	.08	.37	.07	.14	.13	.01	.24
	5	.43	.29	.13	.08	.48	.50	.18	.41	.50
	6	.38	.18	.33	.10	.43	.59	.24	.32	.33
	7	.30	.06	.23	.06	.02	.05	.33	.23	.26
	8	.17	-.05	-.01	-.02	-.02	.02	.02	-.02	-.02
	9	.34	.12	.21	.22	.15	-.03	.34	.20	.40

The values forming the hypotenuse or validity diagonal of Table 11 show that 6 of the 9 entries are significantly different from 0 and sufficiently large enough to warrant further examination. These same 6, objectives 3 (.44), 4 (.37), 5 (.48), 6 (.59), 7 (.33), and 9 (.40) also

have values that are greater than those in their rows and columns with some exceptions. Objective 5 has 2 values slightly greater in its row; objective 7 has 1 value slightly greater in its column; and objective 9 has 1 value greater in its column. It should also be noted that overall there seems to be little evidence of method overlap, that is, method covariance. The correlation values outside the validity diagonal are for the most part relatively small averaging 0.15. It is important to look for evidence of method variance when examining these tables because high method covariance tends to elevate the values in the validity diagonal.

Two of the 6 validity diagonal entries, objective 5 (.48) and objective 6 (.59), are large enough to meet the criteria established by this investigator to allow for interchangeableness. It should also be noted that the values for objectives 3 and 9 approach the requirements.

Relationship Between Counselor Ratings and Indices of Accomplishment

Table 12 presents the correlations between the counselor ratings and indices of accomplishment for all 9 objectives.

TABLE 12

CORRELATIONS BETWEEN COUNSELOR RATINGS AND INDICES OF ACCOMPLISHMENT

Objective Indices	Counselor Ratings 1	2	3	4	5	6	7	8	9
1	.04	.10	.21	-.16	-.21	.05	-.04	-.10	-.13
2	.36	.31	.31	-.03	.19	.12	.37	.37	.31
3	.47	.49	.72	.25	.38	.34	.39	.44	.39
4	.00	-.08	.00	.06	-.11	-.08	.08	.04	-.08
5	.06	.02	-.03	.02	.09	.20	.23	.11	.17
6	.13	-.02	.13	.02	.10	.30	.08	.02	.08
7	.24	.21	.11	-.08	.13	-.09	.30	.24	.31
8	.10	.03	.07	-.01	-.03	-.02	.04	.04	.04
9	.35	.32	.35	.20	.27	.06	.43	.34	.38

The values forming the hypotenuse or validity diagonal of Table 12 show that 5 of the 9 entries are significantly different from 0 and sufficiently large enough to warrant further examination. They are objectives 2 (.31), 3 (.72), 6 (.30), 7 (.30), and 9 (.38). Of these 5 only 1, objective 3, has a validity diagonal value that is greater than those in its row and column. Objective 6 has only 1 value in its column greater than its validity diagonal value of .30.

The overall average of the values outside the validity diagonal is .13 indicating little method covariance. Upon closer examination, the reader should note that some fairly high values exist in rows 2, 3 and 9 indicating some method covariance for these objectives.

Only 1 of the validity diagonal entries, objective 3 (.72) is large enough to meet the criteria established by this author to allow for interchangeableness.

Relationship Between Self-Ratings and Counselor Ratings

Table 13 presents the correlations between the self-ratings and counselor ratings for all 9 objectives.

TABLE 13

CORRELATIONS BETWEEN SELF-RATINGS AND COUNSELOR RATINGS

		Self Ratings								
Objective		1	2	3	4	5	6	7	8	9
Counselor Ratings	1	.35	.04	.10	.02	.14	.06	.32	.23	.20
	2	.31	.04	.18	.00	.03	.00	.16	.17	.01
	3	.19	.07	.50	.00	-.02	-.07	.28	.18	.13
	4	.02	.02	-.09	.12	.06	.06	.14	.10	.11
	5	.16	.07	.02	.03	.15	.18	.29	.21	.18
	6	.15	.18	.18	-.04	.10	.38	.30	.33	.16
	7	.39	.10	.10	.04	.13	-.03	.38	.28	.38
	8	.34	.16	.09	.08	.05	.02	.33	.38	.31
	9	.30	.03	.04	-.01	.08	.09	.34	.28	.26

The values forming the validity diagonal of Table 13 show that 5 of the 9 entries are significantly different from 0 and sufficiently large

enough to warrant further examination. They are objectives 1 (.35), 3 (.50), 6 (.38), 7 (.38), and 8 (.38). Of these 5 only 3, objectives 3, 6, and 8, have values in their validity diagonal that are greater than those in their rows and columns. Objectives 1 and 7 have only 1 value each greater than their validity diagonal values.

The overall average of the values outside the validity diagonal is .13, again indicating little method covariance. The reader should also note that what covariance does exist, seems to almost exclusively involve objectives 7 through 9.

Only 1 of the validity diagonal entries, objective 3 (.50), is large enough to allow for interchangeableness.

Summarizing the previous 4 sections which analyzed the data in relation to the 4 null hypotheses, it was found that all 4 were able to be rejected. Through use of the canonical correlations, significant relationships were found among all 3 methods of measuring accomplishment of the guidance program objectives. In addition these sections addressed themselves to the main question of this study, that is, can the self ratings and/or counselor ratings be substituted for the indices in attempting to measure outcomes of the guidance program? Results show a mixed picture. Two criteria were spelled out that must be met before either a counselor rating or student self-rating would be allowed to replace an index. Results of this analysis show that self ratings could be used reasonably well to show general accomplishment of objectives 5 and 6 and counselor ratings could be used for objective 3. None of the self or counselor ratings was found to be sufficiently correlated with the indices to be used for judging individuals.

Evidence of Convergent and Discriminant Validity

Table 14 presents the multiobjective-multimethod matrix. This matrix includes the 3 matrices presented earlier along with the addition of monomethod triangles. All validity diagonals have been clearly marked and the 2 different types of triangles have been outlined differently to make it easier to distinguish them. The monomethod triangles have the solid line around them, and the heteroobjective-heteromethod triangles the broken line. This matrix is presented so that the objectives can be examined for evidence of convergent and discriminant validity. Convergence means that evidence from different sources gathered in different ways all indicates the same or similar meaning of the trait or construct. In other words, different methods of measurement should converge on the trait or construct. Discriminability means that one can empirically differentiate the construct from other constructs that may be similar, and that one can point out what is unrelated to the construct. (Kerlinger, 1973). Validity is represented in the agreement between 2 attempts to measure the same trait through maximally different methods.

Each of the objectives as formulated by the school's guidance department was intended to represent a unique construct separate from the others. However, it must likewise be remembered that the objectives were also thought to be related to each other even dependent on each other. The 9 objectives were logically subdivided into 3 conceptual areas: academic or educational, personal or social, and career or vocational. Within each of these subdivisions, there is supposed to be a building block relationship. In the academic area, it was theorized

that before students could achieve according to their potential, they had to be aware of what that potential was so that they could select an appropriate program of studies. In the personal area it was theorized that students had to be aware of their personal concerns and be willing to talk to someone about them before they could maintain and develop a positive self concept and relate well with others. And finally in the career area, it was theorized that before making decisions about short and long range plans, students had to first know something about the world of work and then be able to relate themselves to requirements and satisfactions involved with different jobs. This section and the next will empirically examine these theoretical assumptions.

The heteroobjective-heteromethod blocks (the 2 heteroobjective-heteromethod triangles with their validity diagonal between them for the self-counselor, self-index, and counselor-index methods) have been examined previously. Among the monomethod triangles, there is a noticeable and obvious concentration of many high values in the counselor triangle as compared to the other 2. The mean value in the counselor triangle is .61 compared to .25 for the self triangle and .16 for the index triangle. This shows the very strong presence of a counselor method factor which reduces the values of the 2 validity diagonals involving counselor ratings. The mean values of the 3 validity diagonals are: self-counselor = .28, counselor-index = .25, and self-index = .32.

In examining this expanded matrix for evidence of convergent and discriminant validity, 2 additional criteria or requirements must be looked for. In addition to having significantly large validity diagonal values that are higher than the values in their rows and columns in the

TABLE 14
MULTIOBJECTIVE – MULTIMETHOD MATRIX

SELF RATINGS

	1	2	3	4	5	6	7	8	9
1									
2	27								
3	26	10							
4	10	13	00						
5	23	10	08	15					
6	29	25	17	12	41				
7	31	-04	29	18	31	15			
8	39	27	24	20	33	36	52		
9	46	23	20	16	43	26	52	52	

	1	2	3	4	5	6	7	8	9
1	35	-04	10	02	14	06	32	23	20
2	31	-04	18	00	03	00	16	17	01
3	19	07	50	00	-02	-07	28	18	13
4	02	02	-09	12	06	06	14	10	11
5	16	07	02	03	15	18	29	21	18
6	15	18	18	-04	10	38	30	33	16
7	39	10	10	04	13	03	38	28	38
8	34	16	09	08	05	02	33	38	31
9	30	03	04	-01	08	09	34	28	26

	1	2	3	4	5	6	7	8	9
1	11	-09	29	13	08	02	10	03	12
2	29	17	28	13	19	09	30	21	16
3	26	07	44	-01	16	07	32	26	24
4	-08	04	08	37	07	14	13	01	24
5	43	29	13	08	48	50	18	41	50
6	38	18	33	10	43	59	24	32	33
7	30	06	23	06	02	05	33	23	26
8	17	-05	-01	-02	-02	02	02	-02	-02
9	34	12	21	32	15	-03	34	20	40

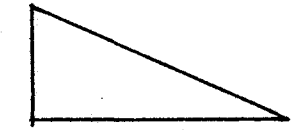
COUNSELOR RATINGS

	1	2	3	4	5	6	7	8	9
1									
2	63								
3	56	54							
4	05	11	21						
5	56	49	42	35					
6	37	18	31	15	51				
7	60	50	53	23	59	23			
8	61	53	50	29	60	25	76		
9	60	45	45	32	64	31	80	74	

	1	2	3	4	5	6	7	8	9
1	-04	-10	21	-16	-21	05	-04	-10	-13
2	36	31	31	-03	19	12	37	37	31
3	47	49	72	25	38	34	39	44	39
4	00	-08	00	-06	-11	-08	08	04	-08
5	06	02	-03	02	09	20	23	11	17
6	13	-02	13	02	10	30	08	02	08
7	24	21	11	-08	13	-09	30	24	31
8	10	03	07	-01	-03	-02	04	04	04
9	35	32	35	20	27	06	43	34	38

INDEX SCORES

	1	2	3	4	5	6	7	8	9
1	-05								
2	17	36							
3	14	01	01						
4	06	17	11	08					
5	11	15	16	13	71				
6	06	27	23	10	24	15			
7	29	07	12	-05	06	06	15		
8	-02	27	36	07	19	18	51	13	



MONOMETHOD TRIANGLE

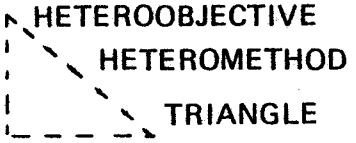


TABLE 15

VALIDITIES OF OBJECTIVES AS JUDGED BY HETEROMETHOD AND MONOMETHOD COMPARISONS

Obj	Brief Description of Objective	Self-Counselor			Counselor-Index			Self-Index		
		Val.	No. Higher H-M	No. Higher M-M	Val.	No. Higher H-M	No. Higher M-M	Val.	No. Higher H-M	No. Higher M-M
1	Accuracy of Self-Assessment	.35	1	9	.04	10	14	.11	8	10
2	Appropriateness of Course Selections	.04	8	14	.31	5	7	.17	7	6
3	Achievement Commensurate with Ability	.50*	0	3	.72*	0	0	.44*	0	0
4	Willingness To Self-Disclose Concerns	.12	1	11	.06	3	10	.37*	0	0
5	Intrapersonal Self Concept	.15	5	13	.09	9	13	.48*	2	1
6	Interpersonal Self Concept	.38*	0	2	.30	1	5	.59*	0	1
7	Knowledge of Careers	.38	1	8	.30	3	7	.33*	1	3
8	Ability to Relate Self To Careers	.38	0	9	.04	7	15	-.02	9	15
9	Decision-Making Ability	.26	5	12	.38	2	7	.40	1	5

Note - Val. = value in validity diagonal; No. Higher H-M = number of values in heteromethod triangles exceeding the validity diagonal value; No. Higher M-M = number of values in monomethod triangles exceeding the validity diagonal value.

*Indicates that the validity value in this heteromethod block is significantly greater than the heteroobjective-heteromethod and monomethod values at the .01 level.

heteroobjective-heteromethod triangles, a variable (objective) should also correlate higher with an independent effort to measure it than with measures designed to differentiate other objectives which happen to employ the same method. So, the third criteria is that a validity diagonal should be higher than its values in the monomethod triangles as well as the heteroobjective-heteromethod triangles.

To summarize the validation picture in relation to comparisons of validity values with other heteromethod and monomethod values in each block, Table 15 was prepared. For each objective and for each of the 3 heteromethod blocks and 3 monomethod triangles, it presents the value of the validity diagonal, the number out of 16 such heteroobjective values which exceed the validity diagonal in magnitude in the hetero-method block, and the number out of 16 such monomethod values which exceed the validity diagonal in magnitude in the monomethod triangles. In short, it summarizes the validity picture for criteria 2 and 3.

On the requirements that the validity diagonal exceed all others in both its heteromethod block and monomethod triangles, none of the objectives has a perfect record. Objective 3 has only 3 exceptions, however, in only 1 of the blocks (self-counselor). None of the objectives meets the criteria in all 3 blocks. While objective 3 is the best as far as discriminant validity is concerned, it is not the only 1 that has far above chance validity defined as 3 or fewer exceptions which is equivalent to a degree of validity significant at the .01 level as

crudely estimated by a 1-tailed sign test.[1] The asterisk in Table 15 indicates that these are the only validity diagonal values that have .01 significant validity in their respective blocks. Looking at each block separately, 2 of the objectives meet this level for the self-counselor block (3 and 6), 1 of the objectives for the counselor-index block (3), and 5 of the objectives for the self-index block (3, 4, 5, 6, and 7).

The fourth criterion for discriminability is that the same pattern of objective interrelationship should be shown in all of the heteroobjective triangles, both monomethod as well as heteromethod. To test the matrix for evidence of this interrelationship, correlations were computed between the self and index monomethod triangles. Each entry in the triangle is thought to represent the size values of the given heteroobjective coefficients in 2 different triangles. The similarity between the 2 monomethod triangles was only .22. Similarly, the heteroobjective block was dealt with as though divided in half by the validity diagonal with the top diagonal values and below diagonal values representing the validity of the heteroobjective correlation pattern. These 2 correlated -.10 showing no degree of confirmation. Finally, the intra-self triangle correlates with the 2 heteroobjective triangles .12 and .30 and the intra-index triangle matrix correlates with the 2 heteroobjective triangles .79 and .27. In general, then, there is little evidence for discriminant validity in the interrelationship pattern.

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[1]Taking the validity value as fixed (ignoring its sampling fluctuations), then whether or not the number of values in its row and column is less than would be expected by chance can be compared to the null hypothesis that half the values would be above it. This assumes that the relative position of the comparison values is independent of each of the others.

Summarizing the above discussion of the multiobjective-multimethod matrix requires a reconsideration of the 4 criteria established by Campbell and Fiske (1959) for convergent and discriminant validity. All the objectives have at least 1 validity diagonal value significantly different from 0 and large enough to encourage further examination (convergent validity). Objectives 1, 2, 8, and 9 fail to have at least 1 validity diagonal value that is large enough to be greater than the values in its row and column in both the heteromethod and monomethod triangles than one would expect by chance. Objective 3 shows the strongest evidence of discriminant validity having all 3 validity diagonal values higher; objective 6 is next having 2 values higher; and objectives 4, 5, and 7 have 1 value higher. The self-index block emerges as the one showing the greatest validity with 5 objectives meeting both criteria.

Hence, on the first 3 requirements this matrix shows ample evidence of validity for 5 of the objectives. It is only on the last requirement that the same pattern of trait interrelationship be shown in all of the heteroobjective triangles of both the monomethod and heteromethod blocks that there is poor evidence of discriminant validity.

To further analyze the measures for evidence of discriminant validity, a factor analysis of the data using the principal factor method was computed with the varimax rotation criterion applied to each solution. Performing this has enabled this investigator to account for relationships among the 27 variables with a more cohesive set of dimensions. Results and discussion of the factor analysis are presented in the next section.

Factor Analysis

To help readers follow the ensuing discussion more easily, Table 16 is presented summarizing the 27 variables that were intercorrelated and factor analyzed. The general purpose of the factor analysis was to identify the smallest set of dimensions that account for intercorrelations among the various measures of the objectives. In addition another opportunity is afforded to examine the validity of the theoretical constructs on which the objectives are based. To the extent that the 3 areas of objectives (academic, personal and career) are uncorrelated and truly represented by the objectives, the factor analysis should produce results along these lines.

After the 27 measures were factor analyzed, the eigen values were examined using the scree test (Gorsuch, 1974). The scree test indicated that 4 factors was the appropriate mathematical solution accounting for 51.8 per cent of the total variance. Inspection of the 4 factor solution, using the criterion of .50 for selection of an item, shows clusters that intuitively made sense for 18 of the 27 variables. The factor loadings over .30 for the 4 factors are specified in Table 17.

As expected from the analysis of the multiobjective-multimethod matrix, 1 of the factors (Factor I) involves nearly all the counselor ratings. The other 3 factor groupings tend to support the 3 general areas or domains of the objectives. All the counselor ratings except for 2 clustered on Factor I. The 2 that did not (4 and 6) achieve a .50 loading on this factor approach it with .33 and .41. In addition, it should be noted that the practicum counselors' ratings of the

TABLE 16

BRIEF DEFINITION OF VARIABLES

Self 1	= Student self-rating of his academic strengths and weaknesses
Coun 1	= Counselor rating of student academic strengths and weaknesses
Indx 1	= Accuracy score comparing student self-ratings to teachers' ratings and scores on ITED
Self 2	= Student self-rating of appropriateness of his course selections
Coun 2	= Counselor rating of appropriateness of student course selections
Indx 2	= outside experts' ratings of appropriateness of student course selections
Self 3	= Student self-rating of extent to which his grades match his abilities
Coun 3	= Counselor rating of extent to which students' grades match their abilities
Indx 3	= Actual GPA - predicted GPA computed from simple regression analysis between I.Q. and GPA
Self 4	= Student self-rating of his willingness to discuss personal concerns
Coun 4	= Counselor rating of student willingness to discuss personal concerns
Indx 4	= Score on questionnaire delineating 50 personal concerns
Self 5	= Student self-rating his overall self esteem and self-confidence
Coun 5	= Counselor rating of student self esteem and self-confidence
Indx 5	= Student scores on Personal Self Scale of Tennessee Self Concept Scale (TSCS)
Self 6	= Student self-rating of his satisfaction with his interpersonal life
Coun 6	= Counselor rating of student satisfaction with their interpersonal life
Indx 6	= Student scores on Family Self + Social Self scales of the TSCS
Self 7	= Student self-rating of his knowledge of careers
Coun 7	= Counselor rating of student knowledge of careers
Indx 7	= Mean score of Occupation Characteristics Scale + Occupational Requirements Scale of ACD
Self 8	= Student self-rating of their ability to relate careers to self
Coun 8	= Counselor rating of student ability to relate careers to self
Indx 8	= Mean of spearman rank order coefficient between student rankings of 12 occupations and rankings produced by SCII and accuracy score comparing student self-ratings of their abilities to ITED scores
Self 9	= Student self-rating of his decision-making skills in relation to short and long range goals
Coun 9	= Counselor rating of student decision making skills in relation to students' short & long range goals
Indx 9	= Mean of Career Planning Knowledge Scale + Career Planning Involvement Scale of the ACD

TABLE 17

ROTATED FOUR-FACTOR SOLUTION

Method-Objective Specification		Factors I	II	III	IV	h^2
I	Coun-9	.83				.72
	Coun-8	.82				.71
	Coun-7	.80		(.31)		.74
	Coun-5	.80				.72
	Coun-1	.73				.58
	Coun-3	.65			.58	.76
	Coun-2	.64				.49
	Indx-3	.56			.51	.59
	Self-7	(.37)	(.33)	(.35)		.36
	Indx-2	(.36)				.24
	Coun-4	(.33)				.14
II	Indx-6		.76			.62
	Self-6		.75			.58
	Indx-5		.73			.60
	Self-5		.55			.34
	Self-8		.53			.42
	Coun-6	(.41)	(.45)	(-.36)		.51
	Self-1		(.39)	(.35)		.39
	Self-2		(.32)			.11
III	Indx-7			.55		.39
	Self-9		.51	.52		.58
	Indx-9	(.40)		.51		.45
IV	Self-3				.64	.48
	Indx-1				.52	.29
	Self-4					.08
	Indx-4					.07
	Indx-8					.05

students' course selections along with the students' scores on the Personal Self scale of the TSCS tend to load on this factor .36 and .37. A final observation is that there is some overlap between this factor and Factor IV. Index 3 (a student's grade point average predicted from his I.Q.) loads .51 on Factor I suggesting that the counselor ratings are related to how well the students are achieving in line with their potential as measured by an I.Q. test.

Factor II consists entirely of student self report measures of some aspect of their own development and/or knowledge. The trend that is emerging in analyzing this solution is one of method factors. That is, measures tend to cluster or load on factors according to the similarity of the methodology employed as well as similarity of actual construct. Factor II consists of scores from the TSCS and the student self-ratings of their own self esteem, relationships with others, ability to relate themselves to career opportunities, and decision making ability. Since the TSCS is a self report measure, all the measures that load on this factor are very similar. It should be noted also that 3 additional self ratings for objectives 1, 2, and 7 also tend to load on this factor reinforcing the interpretation of method factors.

Factor III is composed of 3 loadings all of which are related to some aspect of the students' career development. Indices for objectives 7 and 9 are scores on the ACD and self 9 is the students' perceptions of his own decision making ability. The counselors' ratings and student self ratings of knowledge of careers also tend to load on this factor .31 and .35.

Factor IV is loaded with measures that relate to how well a

student achieves academically in relation to his potential. It consists of all 3 methods for measuring accomplishment of objective 3 plus the accuracy of the students' self assessment (index 1). This would seem to indicate a relationship between the accuracy of the students' self assessment and his actual academic performance. In addition, 2 of the 4 significant loadings on the factor overlap with Factor I indicating that there is a relationship between them.

Nine of the variables failed to reach the .50 criterion for item selection, but only 3 of the variables failed to even approach .50. Self 4 and Index 4 correlate .37 with each other but hardly at all with anything else and hence have no significant loadings on any of the 4 factors. Willingness to self disclose personal concerns appears then to be a separate factor in and of itself. Likewise, a reexamination of the multiobjective-multimethod matrix reveals that Index 8 correlates very little with any of the other measures and hence it too has a very low loading on any of the factors.

The remaining 6 variables while having loadings that fall short of .50 do still merit secondary consideration. A students' self rating of the accuracy of his self assessment of his own academic strengths and weaknesses (self 1) tends to be related to his overall level of self esteem (Factor II) as well as his level of career development (Factor III). There is a tendency for counselors to rate students high on career development if they perceive him to be shy and withdrawn, perhaps seeing these students as more goal oriented and less social (coun 6, -.36 with Factor III and .45 with Factor II). A final observation is that a student's estimate of his knowledge of careers (self 7) tends to be

related to his overall self esteem as well as his actual career development (Factors II and III). Self 7 is also the only self rating that loads on the counselor halo factor (Factor I).

A final observation of the factor solution was made. If it is meaningful to think of a general construct called "achievement of the objectives," then the first factor on the unrotated matrix would reflect this because most of the variables should load positively on it. All 27 variables do load positively on this first factor indicating that this is a meaningful construct. Four of the variables, however, do so very minimally (index 1, self 4, index 4, and index 8). These variables seem unrelated to all the rest. We have seen that self 4 and index 4 appear to be a factor of their own and that index 1 loads on Factor IV of the rotated factor matrix. Index 8 again stands alone, having no relationship to any of the other variables.

To summarize the results, the factor analysis shows that such an analysis of the 27 variables produces 4 factors incorporating 18 of the variables. They are counselor halo effect, self-esteem, career development and academic achievement. Six of the remaining 9 measures show a strong tendency to load across the first 3 factors and the remaining 3 variables show no tendency to load on any of the factors. Factors I and IV appear to be strongly related suggesting that a counselor's perceptions of a student are a function of that student's academic performance.

In addition to construct similarity all 4 factors have great and overlapping similarity of method. Factor I is composed almost entirely of counselor ratings. Factor II is composed essentially of personal

self report measures or attitudes. Factor III is mostly made up of a multiple choice cognitive test scores, and Factor IV of comparisons of actual GPA with potential. Even though the methodology employed in measuring objective 3 may initially appear to be very independent, further reflection reveals that it is not. The fact that the self ratings and counselor ratings tend to have relatively high intra-correlations accounts for the poor evidence of discriminant validity. In other words the self-ratings and counselor ratings tend to correlate more highly within themselves than they do across the objectives.

It is not surprising in light of the strong presence of the method factors that more of the student self-ratings correlate with the indices than do the counselor ratings. This is because many of the indices use a self report methodology.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Evaluation of educational programs is a subject that continues to receive significant emphasis in the literature. Several studies have demonstrated the value of the systems approach to organizing and evaluating educational programs in general and guidance programs in particular. A formal systems approach begins with a needs assessment of the students, and the results are then used to write broad general goals. From the list of goals, specific behavioral objectives are written. At the same time the objectives are written, strategies for measuring them are agreed upon as well as criteria for accomplishment. From the objectives a program is designed, implemented, evaluated and then the program is either revised or new objectives are written. In either case the system is self-renewing.

A critical stage of implementation of a systems approach is deciding how to measure whether or not students have actually accomplished the objectives. Decisions about whether or not to continue a program or what aspects need modification is completely dependent on the quality of the data that is generated from the evaluation methods and instruments employed. It is therefore of critical importance that the methods and instruments that are used actually generate results or data in which all affected by the program can have confidence. In other words, they should demonstrate evidence of validity.

The question of validity aside for a moment, practitioners are

also pressed for both time and money. Evaluation strategies that are employed in schools, then, in addition to being valid should also optimally be easy and inexpensive to administer and summarize. The focus of this research was to examine similarities and differences among 3 different ways of measuring the extent to which a large group of high school seniors knew, could do, or had done what was defined in that school's guidance program objectives.

Objectives

Academic Area

1. Each student will assess his academic strengths and weaknesses including his abilities, study habits, classroom attending behaviors, skill development, and motivation.
2. Each student will execute a course of studies relative to his assessment of his abilities, interests, values, and goals.
3. Each student will make plans to improve his academic performance if necessary.

Personal Area

4. Each student will identify his personal concerns.
5. Each student will form a positive self concept.
6. Each student will form satisfying interpersonal relationships with peers, family, teachers, and others.

Career Area

7. Each student will gather information from a variety of sources.
8. Each student will evaluate the career information in relation to his abilities, interests, and values.

9. Each student will develop and implement decision making skills to formulate short and long range career plans.

Three Methods of Measuring Objectives

One method was to have students themselves make a self evaluation of their own growth and development in relation to the objectives. Each of the objectives was rephrased into a question and students rated themselves on a 4 point scale as to how well they thought they knew, could do, or have done what is being asked. This first method, then, is student self-ratings. A second method was to have the students' counselors rate them on a 4 point scale as to how well they thought they had accomplished the objectives. In filling out the rating scales, the counselors referred to all available guidance records in the school. The third method employed was by far the most time consuming and expensive, but also presumably the most objective. Students were administered a self-concept inventory, career development inventory, vocational interest test, and 4 locally designed questionnaires. The results were tabulated and a numerical score or index of accomplishment was computed for each objective for each student.

Subjects

A stratified random sample from 3 tracks or ability levels of high school senior boys from a large local Catholic boys' high school completed the entire battery of locally designed and normed instruments. There were 100 students in the sample. Also the school's 9 full time counselors completed a rating scale for each of the students in the

sample from their caseload. Each counselor had approximately a dozen students in the sample.

Instruments

Four normed instruments were administered to the students: the Iowa Test of Educational Development (ITED), the Tennessee Self-Concept Scale (TSCS), the Assessment of Career Development (ACD), and the Strong-Campbell Interest Inventory. In addition to these normed instruments administered to the students, several others were filled out by the students, counselors, teachers, and 2 counseling practicum students. They are: the Senior Self-Rating of Accomplishment of Guidance Program Objectives, the Counselor Rating of Individual Student Accomplishment of Guidance Program Objectives, the Academic Strengths and Weaknesses Checklist; Self-Rating Form and Observer Form, the Rating of Adequacy of Student Course Program Scale, and the Occupations Ranking Scale, and Questionnaire on Willingness to Discuss Personal Concerns.

Research Design

In homeroom the entire senior class (N = 534) took the Senior Self Rating Scale. The next day the counselors filled out the Counselor Rating Scale referring to the students' guidance records. During the following week a random sample of 100 seniors were sent letters to report to an unused classroom over a 4 day period in groups of 25 each. These seniors took the Academic Strengths and Weaknesses Checklist, Questionnaire on Willingness to Discuss Personal Concerns, Occupations Ranking Scale, the TSCS, ACD, and SCII. The data generated by these

instruments was converted into 1 index number or score for each objective for each student.

Indices of Accomplishment for Each Objective

Objective 1: accuracy score reflecting the difference between a student's self estimates and both his teachers' ratings and scores on the ITED*

Objective 2: counseling practicum students' rating of appropriateness of course selections

Objective 3: actual GPA - predicted GPA computed from a simple regression analysis between I.Q. and GPA

Objective 4: average score on questionnaire of 50 personal concerns indicating willingness to discuss

Objective 5: score on Personal Self Scale of TSCS

Objective 6: scores on the Family Self and Social Self scales of the TSCS

Objective 7: scores on the Occupational Characteristics and Requirements Scales of the ACD

Objective 8: combination of Spearman rank order coefficient of 12 occupations and rankings produced by SCII and accuracy score comparing self-ratings to ITED scores

Objective 9: scores on Career Planning Knowledge Scale and Career Planning Involvement Scale of ACD

Assumptions and Hypotheses

The investigator assumed that there would be significant

*All seniors take the ITED in May for curriculum assessment purposes.

relationships between the 3 methods of measuring accomplishment of the objectives and that at least some of the methods would be interchangeable, that is, that the simple self-ratings and counselor ratings could be substituted for the more cumbersome indices. The following null hypotheses were tested:

1. Is there a significant relationship between the student self-ratings and the indices of accomplishment?

2. Is there a significant relationship between the counselor ratings and the indices of accomplishment?

3. Is there a significant relationship between the self ratings and counselor ratings?

4. Is there a significant relationship between the combined self and counselor ratings and the indices?

Data Analysis

The 4 standardized measures were computer scored by their respective publishers. All other instruments were scored by hand. Finally each index for each student was calculated. The student self-ratings, counselor ratings, and computed index for each objective for each student (27 variables for each student) were keypunched on IBM cards and processed at the Loyola Data Processing Center. The Statistical Package for the Social Sciences (SPSS) was utilized for frequencies, means and standard deviations, canonical correlations and factor analysis.

Results

Initial examination of the raw data revealed that each of the 3

methods achieved a wide range of responses and appears to be able to differentiate accomplishment of the objectives. Comparisons between the self and counselor ratings showed that the counselors seem to exaggerate the willingness of the students to self disclose personal concerns. In addition the counselors tended to rate the students higher than the students rated themselves on the wisdom of their course selections and their achievement matching their potential. Students rated their intra- and interpersonal self-concepts, ability to match themselves to careers, and decision making ability higher than the counselors. The 2 groups were very similar in their estimate of the accuracy of the self assessment and knowledge of careers.

Four canonical correlations were performed between subsets of the data relating: self-ratings with the indices, counselor ratings with the indices, self-ratings with counselor ratings, and the combined self and counselor ratings with the indices. Significant canonical correlations were found in all cases, 4 for the first set at the .001 and .05 levels, 2 for the second set at the .001 and .01 levels, 3 for the third set at the .001 and .05 levels, and 4 for the last set at the .001 and .002 levels. All 4 null hypotheses were therefore rejected.

When the product moment correlation tables were examined individually, several significant relationships were also found. There were 6 significant relationships between the self-ratings and indices: .44 for objective 3, .37 for objective 4, .48 for objective 5, .59 for objective 6, .33 for objective 7, and .40 for objective 9. Five significant relationships were found between the counselor ratings and indices: .31 for objective 2, .72 for objective 3, .30 for objectives 6 and 7, and

.38 for objective 9. And finally, 5 significant relationships were found between the self-ratings and the counselor ratings: .35 for objective 1, .50 for objective 3, and .38 for objectives 6, 7, and 8.

Two criteria were established for substituting either self-ratings or counselor ratings for the indices of accomplishment. If the measure is to be used for an indication of accomplishment of an objective for an entire group, then it must correlate .50 or higher. If the measure is to be used for an indication of accomplishment of an objective for an individual, then it must correlate .80 or higher. Applying these two criteria showed that self-ratings could be used reasonably well to show group accomplishment of objectives 5 and 6 (intra- and interpersonal self-concept), and counselor ratings could be used for objective 3 (achievement in line with potential). Neither method could be used to measure individuals.

The correlation matrix for all 27 variables (the multiobjective-multimethod matrix) was examined for evidence of convergent and discriminant validity for all the objectives in relation to 4 criteria established by Campbell and Fiske (1959). There is considerable evidence of convergent validity for all the objectives. Objective 3 (achievement in line with potential) showed the strongest evidence of discriminant validity and objectives 4, 5, 6, and 7 showed evidence of discriminant validity for Campbell and Fiske's second and third criteria. However, this was offset by the lack of a pattern of trait or objective interrelationship across the 3 different methods of measuring the objectives.

To help clarify and account for the complex interrelationships among the 27 variables, a factor analysis of the variables using the

principal factors method was computed with the varimax rotation criterion applied to the solution. Using the scree test (Gorsuch 1974), 4 factors emerged incorporating 18 of the 27 variables. They were labeled: I- counselor halo effect, II - self esteem, III - career development, and IV - academic achievement. Six of the remaining 9 measures showed a strong tendency to load across the first 3 factors and the remaining 3 showed no tendency to load on any of the factors. Two of these unloaded variables correlated highly with each other and seem to constitute an independent factor, willingness to self-disclose personal concerns. Also factors I and IV appear to be strongly related suggesting that a counselor's perceptions of a student are a function of that student's academic performance. In addition to construct similarity, all 4 factors had great and overlapping similarity of method. This accounts for the poor evidence of discriminant validity.

Conclusions

In this section each objective will be discussed individually with the 3 methods of measuring it being analyzed, compared, and contrasted. This is followed by general conclusions about the methods and study as a whole. An important question that must be asked and answered for each of these objectives is, "Is the index of accomplishment a valid measure of the objective?" In other words, it is important to know what the content validity of the index is. Content validity is defined by Kerlinger (1974, p 457) to be "the representativeness or sampling adequacy of the content - the substance, the matter, the topics - of a measuring instrument."

Objective 1: Accuracy of Self-Assessment

For the first objective the question of content validity is related to the reliability and validity of the observer form of the Academic Strengths and Weaknesses Checklist, and neither has been determined, although averaging the ratings over 3 teachers should have minimized individual biases and increased the reliability of these ratings. Assuming content validity, then neither the students' self-ratings nor the counselors' ratings are able to adequately measure accomplishment of this objective. It is interesting to note that there is a .01 difference between the mean ratings of the students and counselors and that they correlate with each other significantly (.35), yet neither correlates significantly with the index. This convergence of the self- and counselor ratings is offset, however, by the high number of monomethod triangle values (9) that are higher, indicating no evidence of discriminant validity for this objective. The factor loadings and high number of monomethod values that are higher in each of the 3 heteroobjective-heteromethod blocks show that the students' and counselors' ratings are more related to the students' overall level of self-esteem and the counselors' overall impression of the students, than they are to the students' actual ratings or estimates of his own classroom attending behaviors, study habits, and abilities as defined by the students' teachers and a standardized achievement test. In short, then, of the 3 methods only the index or some alternate form of it must be used to measure accomplishment of this objective.

Objective 2: Appropriateness of Course Selections

This objective, like the first one, showed evidence of convergence

in only 1 of the heteroobjective-heteromethod blocks (counselor-index) and no evidence of discriminability. Because there is an extremely high degree of method overlap* between the counselor rating and index methods of measuring this objective, it is not surprising that these 2 would tend to converge (.31). The counselors, however, rated the adequacy of the students' course selections significantly higher (3.25) than the practicum students (2.89) and significantly higher than the students themselves (3.04). This suggests the possibility that the counselors are really rating an aspect of their own competency as academic advisors, and therefore, are not able to remain objective. This conclusion is, of course, very tentative and needs more investigation. Secondly, it is possible that students are not rating the adequacy of their course selections as much as they are rating their feelings of satisfaction with these courses and their teachers. If this is in fact the case, then high correlations with the counselors' and practicum students' ratings of the adequacy of student selections (not the courses or teachers) would not be expected. In short, of the 3 methods, the index or some alternate form of it must be used to measure accomplishment of this objective.

Objective 3: Achievement Commensurate with Ability

This is the only objective of the 9 that showed evidence of both convergent and discriminant validity in all 3 heteroobjective-heteromethod blocks. It should be noted, however, that there is considerable

*Both methods use exactly the same method of having either the counselor or practicum students reviewing the students' guidance file and then rating the adequacy of their course selections on a 4-point scale.

method overlap present. All 3 methods employ essentially the same strategy of comparing the students' grades to their ability. It is not surprising, therefore, that the counselor ratings correlate very highly (.72) with the index because the counselors have access to the I.Q. test scores of the students. Counselors appear to be as efficient as the regression analysis at comparing GPA to I.Q. and then indicating whether or not a student is achieving as expected. The students also are fairly aware of what their academic potential is and able to rate the extent to which they are living up to it. This confirms the findings of Baird (1976). The students' self-ratings (2.52) of the extent to which they are achieving according to their potential are significantly below the counselors' ratings (2.82) suggesting that the students may have an exaggerated concept of their own potential.

This trait or objective emerged as a factor in the factor analysis (factor IV) and was found to be related to both how a counselor viewed a student as well as to the accuracy of his self-ratings of his academic strengths and weaknesses (index 1). This is not surprising in light of the above discussion. In short, of the 3 methods, the counselor ratings seems to be the preferable measure of accomplishment of this objective, especially when the time and effort involved in computing the index is considered.

Objective 4: Willingness to Self-Disclose

Results for this objective are quite interesting. The counselors significantly and strongly overestimate the willingness of the students to discuss their personal problems and concerns. This fact suggests that the counselors may have significant ego-involvement in rating their

assigned students on this objective. Further investigation of this statement is warranted. The self-ratings and index show evidence of convergence and discrimination essentially because they both utilize a self-report methodology. Asking the students 1 question about their general willingness to self-disclose personal concerns to school personnel is nearly as efficient as asking them 50. Administering the Questionnaire on Willingness to Discuss Personal Concerns is the preferred method for measuring this objective, since the self-ratings fall short of the minimum criterion (.50) established for interchangeableness. A final observation about this objective is that there is apparently no relationship between willingness to discuss personal concerns and self-concept as was postulated by the guidance department.

Objectives 5 and 6: Intrapersonal and Interpersonal Self Concept

Like the previous objective and the next one, these showed evidence of both convergent and discriminant validity in the self-index block. However, unlike the next objective, the method overlap is considerable. What seems important is that students' intra- and interpersonal self-concepts can be efficiently measured by asking them just 2 questions as opposed to the 100 in the TSCS which has demonstrated both content and construct validity (Fitts 1972c). For both intra- and interpersonal self concept, the counselors seem to rate the students lower (2.84 vs. 3.11 and 2.98 vs. 3.16). Why this is so is not clear. The counselors' estimate of a student's self concept seems to be related to his overall impression of the student which, as stated before, is a function of how well a student is achieving according to his potential. Counselors seem better able to rate a student's interpersonal self concept probably

because it is more readily observable. In short, of the 3 methods, self-ratings can be used to measure accomplishment of these objectives.

Objective 7: Knowledge of Careers

Convergence was present in all 3 heteroobjective-heteromethod blocks, but discriminability was found in only the self-index block. The counselors' ratings of the students' knowledge of careers seems more related to their overall impression of them than to their actual knowledge of the world of work. Since the content validity for this objective is assumed to be quite sound, the significant correlation between it and the students' self-ratings is impressive. The seniors seem fairly able as a group to estimate their knowledge of the world of work yet not so well that these ratings could substitute for the ACD scales. In short, the index must be used to measure accomplishment of this objective.

Objective 8: Ability to Relate Self to Careers

The index for this objective had the lowest correlations of all with both the self-ratings and counselor ratings. In fact, this index correlated significantly with nothing else at all except index 1 with which it shares method overlap since the students' self-ratings of their abilities is part of both indices. This index also failed to load (even remotely) on any of the factors in the factor analysis on both the unrotated and rotated factor matrix. It can be concluded therefore that it is a measure unique to itself. Asking students to rank order a list of 12 occupations according to their compatibility with their abilities, interests and values may be too much to expect high school students to be able to do well. The occupations scales of the SVIB are composed

almost exclusively of semi-professional and professional occupations and therefore may be too remote for adolescents to be able to compare themselves to efficiently. In short, since the content and construct validity of this index seems very weak, no clear statement can be made about the measures of this objective.

Objective 9: Decision-Making Ability

Like objective 7 convergence was present in all 3 blocks, but unlike objective 7 discriminability was found in none. Again the counselors' ratings seem more related to their overall impression of the student than to his actual decision-making skills as measured by the ACD. The students' self-ratings appear to be strongly related both to their actual decision-making skills as measured by the ACD and their overall level of self esteem since their self-ratings load significantly on both factors II and III. Even though the seniors seem fairly able as a group to estimate their decision-making skills, the correlation is not high enough to warrant substituting these self-ratings for the ACD scales used in the index. In short, the index must be used to measure accomplishment of this objective.

General Conclusions

1. The counselor rating scale (Counselor Rating of Individual Student Accomplishment of Guidance Program Objectives) is subject to significant and considerable rater bias, and this rater bias can significantly affect the predictive validity of the scale for individual raters. The counselors tend to rate students along 1 dimension, and therefore do not discriminate differential levels of accomplishment of the

guidance program objectives across the 3 domains of the objectives. When one considers the length of contact that the counselors have with their students (in most cases 3 or 4 years) and the comprehensiveness of the information contained in the students' guidance files, this conclusion is startling and has great implications for counselor educators.

2. The high school seniors as a group are better able to rate their own accomplishment of selected objectives of the guidance program than are their assigned counselors. Five objectives had student self-ratings that correlated significantly with the indices as compared to only 1 objective for counselor ratings.
3. Similarity of method utilized to measure accomplishment of an objective produces higher correlations than dissimilar methods which cloud any conclusions about the construct validity of an objective.
4. The factor analysis showed that dividing the guidance program objectives into an academic domain, personal-interpersonal domain, and career domain seems logical and consonant with reality.

Recommendations

1. Establish the test-retest reliability of all locally designed instruments used in this study and include them in all future analyses of the multitrait-multimethod matrices.
2. Investigate the relationship between counselors' self-ratings of their own professional competencies and their ratings of their students' willingness to self-disclose personal concerns and the adequacy of the students' course selections. A similar recommenda-

tion is to investigate the relationship between actual levels of the counselors' competencies and their ability to accurately rate students' accomplishment of the guidance program objectives as defined by the indices of accomplishment.

3. Conduct a study to determine if instructing counselors to avoid halo error ratings of student accomplishment of guidance program objectives would significantly improve such ratings. (Borman 1975).
4. Investigate the relationship between counselor rating accuracy and similarity of counselors and students (Kagan 1967; Fensterheim and Tresselt 1953; McLaughlin 1970).
5. Redesign an index of accomplishment for objective 8: Each student will evaluate career information in relation to his abilities, interests, and values.
6. Replicate the study with indices that use behavioral measures.
7. Study the relationship between student accomplishment of the objectives as determined by the indices and their ability to rate themselves accurately.
8. Replicate this study at different educational levels in different settings.
9. As a follow-up study investigate to determine the relationship between index scores and future adjustment or life satisfaction.

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APPENDIX A

SENIOR SELF-RATING OF ACCOMPLISHMENT OF GUIDANCE PROGRAM OBJECTIVES

GUIDANCE DEPARTMENT — Gordon Technical High School

Name _____ Date _____ Counselor _____

SENIOR SELF-RATING OF ACCOMPLISHMENT OF GUIDANCE PROGRAM OBJECTIVES

This questionnaire is NOT a test, therefore, there are no right or wrong answers. There are only answers that are true for you! By filling this out honestly and thoughtfully you can help the Guidance Department determine what the strengths and weaknesses of the guidance program are. Besides telling us the areas in which you still need to develop and grow, it will also tell you.

Below are listed all nine objectives or goals of the guidance program of Gordon Tech. Please read each objective carefully and reflect on it for a moment. Following each objective is a question. Please answer each question as best you can without skipping any. Circle ONE number for your answer. If you don't understand a question, please ask me to explain it to you. Your answers are confidential and will not be seen by anyone except you and the counselors. Thank you in advance for your full cooperation!

Circle one number of the best answer for you after each question.

OBJECTIVE No. 1: **Each student will assess his academic strengths and weaknesses including study habits, classroom attending behaviors, basic skill development, and motivation.**

1. How well do you feel you understand your own academic strengths and weaknesses?

4	3	2	1
Very well	OK or adequately	I should learn more about them	Needs much improvement

OBJECTIVE No. 2: **Each student will execute a course of studies relative to his assessment of his abilities, interests, values, and goals.**

2. Since entering Gordon Tech, how well do you feel your choice or selection of courses matches your abilities, interests, values and goals?

4	3	2	1
Very well	OK or adequately	Not as well as I would like	Poorly

OBJECTIVE No. 3: **Each student will make plans to improve his academic performance if necessary.**

3. Rate how well you feel your grades at Gordon Tech reflect your true abilities and potential.

4	3	2	1
Excellent	Good	Fair	Poor

OBJECTIVES No. 4: **Each student will identify his personal concerns.**

4. Would you ever talk with some adult here at school about a personal problem or concern?

4	3	2	1
Yes, definitely	Probably	Maybe	No, never

OBJECTIVE No. 5: **Each student will form a positive self-concept.**

5. How well have you learned to like and appreciate yourself as a unique individual with a solid sense of self-confidence?

4	3	2	1
Very well	OK or adequately	Not as well as I would like	Needs much improvement

OBJECTIVE No. 6: **Each student will form satisfying interpersonal relationships with peers, family, teachers, and others.**

6. How satisfied are you with the way you get along with your family and other people?

4	3	2	1
Very satisfied	Basically satisfied	Somewhat dissatisfied	Very dissatisfied

OBJECTIVE No. 7: Each student will gather career information from a variety of sources.

7. How much do you think you know about career opportunities and requirements in comparison to other seniors?

4	3	2	1
A lot more than others	More than others	About as much as others	Less than others

OBJECTIVE No. 8: Each student will evaluate the career information in relation to his abilities, interests, and values.

8. How well are you able to relate what you know about career opportunities and requirements to your abilities, interests and values?

4	3	2	1
Very well	OK or adequately	Not as well as I would like	Needs much improvement

OBJECTIVE No. 9: Each student will develop and implement decision-making skills to formulate short and long range career plans.

9. Rate your understanding of the decision-making process and your ability to use this knowledge in making short and long range career plans.

4	3	2	1
Excellent	Above average	Average	Below average

---

1. What are your immediate plans after graduation? (Check only one)

_____ I plan to work full time. Specify job title _____

_____ I plan to enter the Armed Services. Branch _____

_____ I plan to attend a 2 year college.

Name _____ Accepted / Pending / Not applied City _____ Major _____

_____ I plan to attend a 4 year college.

Name _____ Accepted / Pending / Not applied City _____ Major _____

_____ I plan to attend a business, trade, or technical school.

Name _____ Accepted / Pending / Not applied City _____ Major _____

_____ Other: Specify _____

_____ I am undecided about what I am going to do for the first year after I graduate.

2. Make comments here about the guidance department and program that you feel are important.

_____

_____

_____

_____

3. List the full name of any Scholarships or Awards you have won this year — including the Federal or State grants.

_____

_____

_____

APPENDIX B

COUNSELOR RATING OF INDIVIDUAL STUDENT'S ACCOMPLISHMENT OF GUIDANCE PROGRAM OBJECTIVES

GORDON TECHNICAL HIGH SCHOOL
GUIDANCE DEPARTMENT

COUNSELOR RATING OF INDIVIDUAL STUDENT'S ACCOMPLISHMENT OF GUIDANCE PROGRAM OBJECTIVES

Student's Name_____ Date_____ Counselor_____

Directions: Please review and study this student's guidance file thoroughly. Then answer each of the following nine questions. Please do not skip any question. If you are not sure of an answer, make the "best educated guess" that you can. Thank you for your cooperation.

Circle only one number after each question.

1. How well do you feel this student understands his own academic strenghts and weaknesses?

4 Very Well | 3 OK or Adequately | 2 He needs to learn more about them | 1 Needs much improvement

2. Since entering Gordon Tech, how well do you feel his choice or selection of courses matches his abilities, interests, values and goals?

4 Very Well | 3 OK or Adequately | 2 Not as well as it should | 1 Poorly

3. Rate how well you feel this student's grades at Gordon Tech reflect his true abilities and potential?

4 Excellent | 3 Good | 2 Fair | 1 Poor

4. Would he ever talk with you or some other adult here at school about a personal problem or concern?

4 Yes, Definitely | 3 Probably | 2 Maybe | 1 No, Never

5. How well has he learned to like and appreciate himself as a unique individual with a solid sense of self-confidence?

4 Very Well | 3 Ok or Adequately | 2 Not as well as he needs to | 1 Needs much improvement

6. How satisfied is he with the way he gets along with his family and other people?

4 Very Satisfied | 3 Basically Satisfied | 2 Somewhat Dissatisfied | 1 Very Dissatisfied

7. How much do you think he knows about career opportunities and requirements in comparison to other seniors?

4 A lot more than others | 3 More than others | 2 About as much as others | 1 Less than others

8. How well is this student able to relate what he knows about career opportunities and requirements to his abilities, interests, and values?

4 Very Well | 3 OK or Adequately | 2 Not as well as he needs to | 1 Needs much improvement

9. Rate his understanding of the decision-making process and his ability to use this knowledge in making short and long range career plans?

4 Excellent | 3 Above Average | 2 Average | 1 Below Average

APPENDIX C

LETTER TO STUDENTS

GORDON TECHNICAL HIGH SCHOOL

GUIDANCE DEPARTMENT

April 30, 1976

Dear Senior,

You have been selected at random to help the Guidance Department evaluate the impact of the guidance program on you - the students. Next _____ please report to room 605 with two #2
day date
pencils at 8:00 a.m. All of your teachers have been notified and you are excused from classes periods one through five. If you will miss your lunch period, other arrangements will be made. Thank you in advance for your full cooperation to help us serve you better.

Sincerely,

The Guidance Department

APPENDIX D

DIRECTIONS READ TO STUDENTS

GORDON TECHNICAL HIGH SCHOOL

GUIDANCE DEPARTMENT

Directions Read to the student sample before administration of the battery of questionnaires.

1. You were selected at random to help us evaluate the impact of the guidance program on the students.

2. All of your answers today are completely confidential and in no way, shape or form will be recorded on any school record or given out to anyone at anytime. However, the results will be kept by Mr. Watts under lock and key until the end of the summer, and if you want your results interpreted to you, he will be available over the summer to explain them to you but only if you request it. All results will be burned at the end of the summer.

3. What is needed from you this morning is your whole-hearted cooperation. Please answer each questionnaire as honestly and accurately as you are able.

4. We should easily finish before noon. When all of you have finished the last questionnaire, you will be dismissed either to the cafeteria or to leave the building if you have no more classes.

5. Any questions?

APPENDIX E

ACADEMIC STRENGTHS AND WEAKNESSES CHECKLIST:

SELF RATING FORM

GORDON TECHNICAL HIGH SCHOOL
GUIDANCE DEPARTMENT

Name_____ Date_____ Counselor_____

ACADEMIC STRENGTHS AND WEAKNESSES CHECKLIST
Self-Rating Form

Directions: Check how you feel you do each of the following.

PART I	4 very well	3 OK or adequate	2 I need to IMPROVE	1 I do this POORLY
1. Pay attention in classes				
2. Take notes in classes				
3. Written homework				
4. Turn assignments in on time				
5. Prepare for classes				
6. Participate in discussions in class				
7. Ask good questions in class				
8. Prepare for tests				
9. Motivate myself to achieve				

Part II - Compare yourself to others your age across the country.	Top 10%	Above Average	Average	Below Average
10. Understand and remember what I read				
11. Express my thoughts clearly and correctly in writing				
12. Understand and apply mathmatical principles; use numbers				
13. Understand and apply scientific principles				
14. Use sources other than textbooks for learning				

Top 10% - 90th percentile or better, Above Average - 61st to 89th percentiles, Average - 30th to 60th percentiles, and Below Average - below 30th percentile

APPENDIX F

ACADEMIC STRENGTHS AND WEAKNESSES CHECKLIST:

OBSERVER FORM

GORDON TECHNICAL HIGH SCHOOL
GUIDANCE DEPARTMENT

Name_____ Date_____ Teacher_____

ACADEMIC STRENGTHS AND WEAKNESSES CHECKLIST: Observer Form

Directions: Please help the guidance department evaluate how well students are accomplishing our objectives by filling this checklist out thoughtfully. Check how well you feel the above named student does each of the following. Please try not to skip any if possible.

	4 very well	3 OK or adequate	2 needs to Improve	1 poorly-
1. Pay attention in class				
2. Take notes in class				
3. Do written homework				
4. Turn Assignments in on time				
5. Prepare for classes				
6. Participate in class discussions				
7. Ask good questions in class				
8. Prepare for tests				
9. Motivate himself to achieve				

APPENDIX G

IOWA TEST OF EDUCATIONAL DEVELOPMENT

DESCRIPTION OF THE IOWA TEST OF EDUCATIONAL DEVELOPMENT

The ITED is intended to provide measures of educational development that are appropriate for all high school students, regardless of the specific curriculum they are following. The test content was dictated more by an evaluation of the general needs of the high school graduate than by the specific material introduced in various advanced courses.

Reading

The Reading test is composed of two subtests: Comprehension and Vocabulary. A total Reading score is compiled from these and provides a measure of a student's overall reading ability.

Language Arts

The Language Arts test also is composed of two subtests: Language Usage and Spelling. The total Language Arts score provides a measure of the student's ability to use the English language correctly.

Mathematics

This test provides a measure of the student's ability to solve problems drawn from two broad mathematical areas. The first is the area of practical, realistic situations calling for the application of useful mathematical concepts. The problems in the second area require the student to demonstrate an understanding of number systems and other advanced mathematical ideas.

Social Studies

This test is made up of two parts; the questions based on the two social studies passages in the Reading comprehension subtest and the Social Studies Background test.

The Social Studies score is thus a measure of the student's ability to read and interpret social studies material and to understand present-day social institutions, the major factors that affect our economy, and world developments of historical importance.

Science

Like the Social Studies test, the Science test is composed of two parts; the two science passages in the Reading Comprehension subtest and the Science Background test. The score provides a measure of the student's ability to read science material and to understand important facts, principles, applications, and generalizations drawn from the biological, physical, and earth sciences.

Use of Sources

This test provides a measure of the student's familiarity with, and his ability to use, important library references and other sources of information. The student is required to select the best source of information for a specific purpose and to interpret the guides by which library materials are referenced.

APPENDIX H

RATING OF ADEQUACY OF STUDENT COURSE PROGRAM SCALE

GORDON TECHNICAL HIGH SCHOOL

RATING OF ADEQUACY OF STUDENT COURSE PROGRAM SCALE

Name of Student_____ Date_____

Listed here is the complete program of studies that the above named student followed while he was in high school. If he attended a different school it will be noted. Please do not include what he took at a different high school in your ratings. Study this program and compare it carefully to all the information that is available in the student's guidance file. Then make your final rating.

Freshman Year 19___-___

School attended if not Gordon:_____

Course title:	TRACK	GRADE	GRADE

Sophomore Year 19___-___

School attended if not Gordon;_____

Course title	TRACK	GRADE	GRADE

Junior Year 19___-___

School attended if not Gordon:_____

Course title	TRACK	GRADE	GRADE

Senior Year 19___-___

School attended if not Gordon:_____

Course Title	TRACK	GRADE	GRADE

How well do you feel this student's program of studies has met his abilities, interests, values and goals?

4	3	2	1
Very Well	OK or Adequately	Not as well as it should	Poorly

APPENDIX I

QUESTIONNAIRE ON WILLINGNESS TO DISCUSS PERSONAL CONCERNS

GORDON TECHNICAL HIGH SCHOOL
GUIDANCE DEPARTMENT

QUESTIONNAIRE ON WILLINGNESS TO DISCUSS PERSONAL CONCERNS

Student Name_____ Date_____

The statements on this questionnaire concern matters that have bothered teenagers across the country. You will recognize some of them as things that have bothered or troubled you in the past. Some may even be problems for you now, and some may not concern you. Read each statement on this questionnaire carefully. Imagine for a moment that it really is a problem for you right now. Then indicate whether or not you think you would ever really discuss this problem with your counselor or any other adult here at Gordon.

Circle one number after each question.

Would you talk to your counselor or some other adult here at school	Yes Definitely	Probably	Maybe	No Never
1. if you didn't see much of a future for yourself?	4	3	2	1
2. if you were having trouble controlling your temper?	4	3	2	1
3. if you were worried about little things often?	4	3	2	1
4. if you were too nervous?	4	3	2	1
5. if you were bothered by questions related to sex?	4	3	2	1
6. if you daydreamed too much?	4	3	2	1
7. if you felt guilty about things you had done?	4	3	2	1
8. if your feelings were easily hurt?	4	3	2	1
9. If you often felt lonesome?	4	3	2	1
10. if you avoided taking responsibility?	4	3	2	1
11. If you felt that you weren't as smart as others?	4	3	2	1
12. if you were afraid of failure or humiliation?	4	3	2	1
13. if you wanted to get rid of an undesireable habit?	4	3	2	1
14. if you worried about tests in school?	4	3	2	1
15. if you didn't have time for things you really wanted to do?	4	3	2	1
16. if you were afraid to speak up in class or of making a mistake?	4	3	2	1
17. if you were worried about your health?	4	3	2	1
18. if you wanted people to like you better?	4	3	2	1
19. if you wanted to talk with people more easily?	4	3	2	1

GO ON TO NEXT PAGE

Would you talk to your counselor or some other adult here at school	Yes Definitely	Probably	Maybe	No Never
20. if you didn't know how to act toward people you don't like?	4	3	2	1
21. if you wanted to make new friends but didn't know how?	4	3	2	1
22. if you wanted to develop more self-confidence?	4	3	2	1
23. if you wanted to learn to be more diplomatic or tactful with people?	4	3	2	1
24. if you didn't know how to drop a person you no longer wanted as a friend?	4	3	2	1
25. if you didn't know how to act on formal occasions?	4	3	2	1
26. if you wanted others to stop pushing you around and picking on you?	4	3	2	1
27. if you wanted to stop getting into so many fights??	4	3	2	1
28. if you wanted to learn to be a better listener?	4	3	2	1
29. if you wanted to learn to be more accepting of others' opinions?	4	3	2	1
30. if you wanted to date more but didn't know how to go about it?	4	3	2	1
31. if you felt others were avoiding you?	4	3	2	1
32. if you didn't know what to do on a date?	4	3	2	1
33. if you wanted to learn how to prepare yourself for marriage and family life?	4	3	2	1
34. if you wanted to know how much of your true feelings you should tell your friends?	4	3	2	1
35. if you wanted to learn how to work better with others?	4	3	2	1
36. if you wanted to become more of a leader?	4	3	2	1
37. if you were trying to break away from a crowd you have been hanging with?	4	3	2	1
38. if you felt many people had the wrong idea about you?	4	3	2	1
39. if you thought you had a drinking or drug problem?	4	3	2	1
40. if you were having trouble deciding what is important in life?	4	3	2	1
41. if you were searching for something to believe in?	4	3	2	1
42. if you were having trouble setting standards of "right and wrong"?	4	3	2	1
43. if you needed help to understand your religion better?	4	3	2	1
44. if you were having trouble getting along with a teacher?	4	3	2	1
45. if you were having trouble getting along with your parent(s) or gaurdian(s)?	4	3	2	1

GO ON TO NEXT PAGE

Would you talk to your counselor or some other adult here at school	Yes Definitely	Probably	Maybe	No Never
46. if you were having trouble getting along with a brother or sister?	4	3	2	1
47. if you were having trouble getting along with your girlfriend?	4	3	2	1
48. if you needed more correct information about sex?	4	3	2	1
49. if you felt you were not attractive to girls?	4	3	2	1
50. if you often felt left out of things other guys do?	4	3	2	1

APPENDIX J

TENNESSEE SELF CONCEPT SCALE

NATURE AND MEANING OF SCORES

Individuals who expect to use only the Counseling Form may wish to read only the first part of the following section. However, those who want to use the Clinical and Research Form should read the entire section because all scores in the Counseling Form appear also in the Clinical and Research Form.

I. Counseling Form

A. The Self Criticism Score (SC). This scale is composed of 10 items[1]. These are all mildly derogatory statements that most people admit as being true for them. Individuals who deny most of these statements most often are being defensive and making a deliberate effort to present a favorable picture of themselves. High scores generally indicate a normal, healthy openness and capacity for self-criticism. Extremely high scores (above the 99th percentile) indicate that the individual may be lacking in defenses and may in fact be pathologically undefended. Low scores indicate defensiveness, and suggest that the Positive Scores are probably artificially elevated by this defensiveness.

B. The Positive Scores (P). These scores derive directly from the phenomenological classification scheme already mentioned. In the original analysis of the item pool the statements seemed to be conveying three primary messages: (1) This is what I am, (2) This is how I feel about myself, and (3) This is what I do. On the basis of these three types of statements the three horizontal categories were formed. They appear on the Score Sheet as Row 1, Row 2, and Row 3 and are hereafter referred to by those labels. The Row Scores thus comprise three sub-scores which, when added, constitute the Total Positive or Total P Score. These scores represent an internal frame of reference within which the individual is describing himself.

Further study of the original items indicated that they also varied considerably in terms of a more external frame of reference. Even within the same row category the statements might vary widely in content. For example, with Row 1 (the What I am category) the statements refer to what I am physically, morally, socially, etc. Therefore, the pool of items was sorted again according to these new vertical categories, which are the five Column Scores of the Score Sheet. Thus the whole set of items is divided two ways, vertically into columns (external frame of reference) and horizontally into rows (internal frame of reference) with each item and each cell contributing to two different scores.

1. Total P Score. This is the most important single score on the Counseling Form. It reflects the overall level of self esteem. Persons with high scores tend to like themselves, feel that they are persons of value and worth, have confidence in themselves, and act accordingly. People with low scores are doubtful about their own worth; see themselves as undesirable; often feel anxious, depressed, and unhappy; and have little faith or confidence in themselves.

If the Self Criticism (SC) Score is low, high P Scores become suspect and are probably the result of defensive distortion. Extremely high scores (generally above the 99th percentile) are deviant and are usually found only in such disturbed people as paranoid schizophrenics who as a group show many extreme scores, both high and low.

On the Counseling Form the Positive Scores are simply designated as P Scores, while on the Score Sheet of the C and R Form they are referred to as P + N Scores in order to clarify the computations involved.

2. Row 1 P Score - Identity. These are the "what I am" items. Here the individual is describing his basic identity - what he is as he sees himself.

3. Row 2 P Score - Self Satisfaction. This score comes from those items where the individual describes how he feels about the self he perceives. In general this score reflects the level of self satisfaction or self acceptance. An individual may have very high scores on Row 1 and Row 3 yet still score low on Row 2 because of very high standards and expectations for himself. Or vice versa, he may have a low opinion of himself as indicated by the Row 1 and Row 3 Scores yet still have a high Self Satisfaction Score on Row 2. The sub-scores are

---

1. These items have been taken from the L-Scale of the Minnesota Multiphasic Personality Inventory (1951), Copyright 1943, the University of Minnesota. Published by the Psychological Corporation. Reproduced by special arrangements.

therefore best interpreted in comparison with each other and with the Total P Score.

4. Row 3 P Score - Behavior. This score comes from those items that say "this is what I do, or this is the way I act." Thus this score measures the individual's perception of his own behavior or the way he functions.
5. Column A - Physical Self. Here the individual is presenting his view of his body, his state of health, his physical appearance, skills, and sexuality.
6. Column B - Moral-Ethical Self. This score describes the self from a moral-ethical frame of reference--moral worth, relationship to God, feelings of being a "good" or "bad" person, and satisfaction with one's religion or lack of it.
7. Column C - Personal Self. This score reflects the individual's sense of personal worth, his feeling of adequacy as a person and his evaluation of his personality apart from his body or his relationships to others.
8. Column D - Family Self. This score reflects one's feelings of adequacy, worth, and value as a family member. It refers to the individual's perception of self in reference to his closest and most immediate circle of associates.
9. Column E - Social Self. This is another "self as perceived in relation to others" category but pertains to "others" in a more general way. It reflects the person's sense of adequacy and worth in his social interaction with other people in general.

C. The Variability Scores (V). The V scores provide a simple measure of the amount of variability, or inconsistency, from one area of self perception to another. High scores mean that the subject is quite variable in this respect while low scores indicate low variability which may even approach rigidity if extremely low (below the first percentile).

1. Total V. This represents the total amount of variability for the entire record. High scores mean that the person's self concept is so variable from one area to another as to reflect little unity or integration. High scoring persons tend to compartmentalize certain areas of self and view these areas quite apart from the remainder of self. Well integrated people generally score below the mean on these scores but above the first percentile.
2. Column Total V. This score measures and summarizes the variations within the columns.
3. Row Total V. This score is the sum of the variations across the rows.

D. The Distribution Score (D). This score is a summary score of the way one distributes his answers across the five available choices in responding to the items of the Scale. It is also interpreted as a measure of still another aspect of self perception: certainty about the way one sees himself. High scores indicate that the subject is very definite and certain in what he says about himself while low scores mean just the opposite. Low scores are found also at times with people who are being defensive and guarded. They hedge and avoid really committing themselves by employing "3" responses on the Answer Sheet.

Extreme scores on this variable are undesirable in either direction and are most often obtained from disturbed people. For example, schizophrenic patients often use "5" and "1" answers almost exclusively, thus creating very high D Scores. Other disturbed patients are extremely uncertain and noncommittal in their self descriptions with a predominance of "2", "3" and "4" responses and very low D Scores.

E. The Time Score. This score is simply a measure of the time, to the nearest minute, that the subject requires to complete the Scale. The author has only recently made any study of this variable, and at this point little is known as to its meaning or significance. It correlates significantly with only one of the many other scores of the Scale (Net Conflict sub-score for Column C where r = .32, significant at the .05 level). Therefore, any validity it may prove to have with other criteria should add to the total validity of the Scale.

The data do indicate that, provided the individual has sufficient education, intelligence, and reading ability to handle this task, the majority of subjects complete the Scale in less than 20 minutes. These qualifications are quite important; if they are not met, the Time Score obviously has little meaning. It has been found that psychiatric patients in general take longer than non-patients. This is particularly true of those who are overly compulsive, paranoid or depressed.

SCORE SHEET

Counseling Form
Tennessee Self Concept Scale

NAME	SCHOOL GRADE	SEX	AGE	DATE	TIME STARTED	TIME FINISHED	TOTAL TIME
MARY A. JONES	14	M ☐ F ☒	20	10-10-64	2:07	2:29	22 min.

HOW THE INDIVIDUAL PERCEIVES HIMSELF

IN TERMS OF:	COLUMN A PHYSICAL SELF	COLUMN B MORAL-ETHICAL SELF	COLUMN C PERSONAL SELF	COLUMN D FAMILY SELF	COLUMN E SOCIAL SELF	SELF CRITICISM	ROW TOTALS
ROW 1. IDENTITY WHAT HE IS	P-1 P-2 P-3 N-4 N-5 N-6 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 27	P-19 P-20 P-21 N-22 N-23 N-24 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 25	P-37 P-38 P-39 N-40 N-41 N-42 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 27	P-55 P-56 P-57 N-58 N-59 N-60 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 30	P-73 P-74 P-75 N-76 N-77 N-78 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 30	91 92 93 94 5 5 5 5 4 4 4 4 3 3 1 3 2 2 2 2 1 1 1 1	POS. TIVE P: 139 VARIABILITY Range of P Col. Scores: 5
ROW 2. SELF SATISFACTION HOW HE ACCEPTS HIMSELF	P-7 P-8 P-9 N-10 N-11 N-12 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 22	P-25 P-26 P-27 N-28 N-29 N-30 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 25	P-43 P-44 P-45 N-46 N-47 N-48 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 25	P-61 P-62 P-63 N-64 N-65 N-66 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 30	P-79 P-80 P-81 N-82 N-83 N-84 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 26	95 96 97 98 5 5 5 5 4 4 4 4 3 3 3 3 2 2 2 2 1 1 1 1	128 8
ROW 3. BEHAVIOR HOW HE ACTS	P-13 P-14 P-15 N-16 N-17 N-18 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 26	P-31 P-32 P-33 N-34 N-35 N-36 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 29	P-49 P-50 P-51 N-52 N-53 N-54 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 25	P-67 P-68 P-69 N-70 N-71 N-72 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 27	P-85 P-86 P-87 N-88 N-89 N-90 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5 P 30	99 100 5 5 4 4 3 3 2 2 1 1 SC = 25	137 5
COLUMN TOTALS	P 75 V. (Range of P Col. Scores) 5	P 79 V. 4	P 77 V. 2	P 87 V. 3	P 86 V. 4	Total Positive or P →	404 Row Tot. V: 18 Col. Tot. V. → 18 / 36

DISTRIBUTION OF RESPONSES

NUMBER OF	5's	4's	3's	2's	1's
TOTALS	23	25	6	14	32 = 100
D =	46	25	12	64	149

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COUNSELOR RECORDINGS AND TESTS
BOX 6184, ACKLEN STA.
NASHVILLE, TENN. 37212

Fig. 1. Completed Score Sheet, Counseling Form

Tennessee Self Concept Scale

PROFILE SHEET

Counseling Form

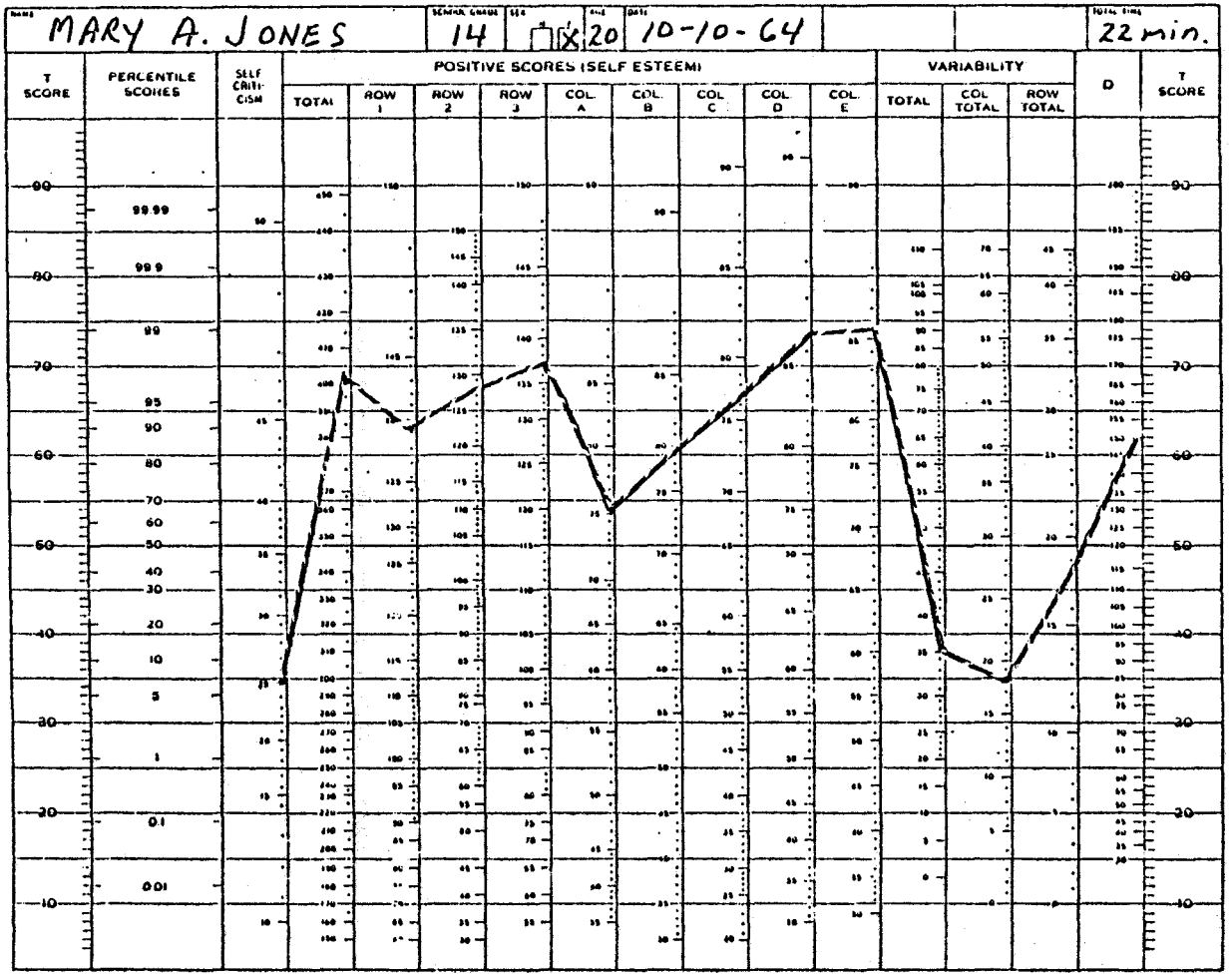

Fig. 2. Completed Profile Sheet, Counseling Form

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APPENDIX K

ASSESSMENT OF CAREER DEVELOPMENT

ASSESSMENT OF CAREER DEVELOPMENT CONTENT OUTLINE

I OCCUPATIONAL AWARENESS (162 items)

A. Occupational Knowledge: Knowledge of a broad range of occupations distributed across all levels of education/training. Test items cover more than 200 occupations selected from each of six comprehensive occupational clusters.

1. Occupational Characteristics (54 items)

a. Duties (25 items)
b. Psychosocial aspects: Working conditions, work schedules, job values associated with occupations (14 items)
c. Relation of Occupations to the data/ideas/people/things dimensions (9 items)
d. Worker Attributes associated with specific occupations: abilities, interests, skills, etc. (15 items)

2. Occupational Preparation Requirements (18 items)

Amount and type of training/education usually associated with various occupations (e.g., apprenticeships, 4-year colleges, vocational-technical schools, on-the-job training, community colleges, and occupations related to high school courses).

B. Exploratory Occupational Experiences: Involvement in experiences related to activities typical of occupations in each of the six occupational clusters. (90 items)

1. Formal Experiences: School extracurricular activities, part-time jobs, community clubs, religious and service groups etc.
2. Informal Experiences: Peer group activities, hobbies, pasttimes, etc.

II SELF AWARENESS (20 items)

A. Preferred Job Characteristics (7 items)
1. Job Values: Students select their most and least important job values from a group of six. (3 items)
2. Working Condition Preferences: Students select preference for each of four bipolar pairs of working conditions. (4 items)

B. Career Plans (4 items)

1. Educational Plans (1 item)

2. Occupational Preferences: Students indicate which job families (from list of 25) correspond to their 1st and 2nd occupational preferences. (2 items)

3. Certainty of Occupational Preferences (1 item)

C. Perceived Needs for Help with Career Planning: Students react to "Help Wanted check list" containing nine types of help schools frequently provide. (9 items)

III CAREER PLANNING AND DECISION MAKING (78 items)

A. Career Planning Knowledge: A sampling of facts, concepts, and understandings useful in career planning as suggested by career development theory and guidance practice. (40 items)

1. Knowledge of Basic Career Development Principles (9 items)

a. continuous nature of career development and decision making (3 items)
b. impact of work on one's life (3 items)
c. multipotentiality of people for occupations (3 items)

2. Knowledge of Reality Factors (10 items)

a. post-high school education and training: types of programs, college not the only option, types of financial aide, etc. (5 items)
b. labor market functioning trends: large number of women in labor force, blue collar to white collar trend, proportion of jobs requiring college, etc. (5 items)

3. Knowledge of the Career Planning Process (21 items)

a. when to start: importance of early planning (3 items)
b. how to proceed (18 items)
(1) sources of help and information: people, agencies, printed and A*V material, etc.
(2) career exploration: importance of self/career exploration, opportunities for exploration etc.
(3) career decision making: role of goals, values, options, utilities, likelihoods, etc.

B. Career Planning Involvement: Inventory of student involvement in exploratory and planning experiences available in the school and community both on a formal and informal basis. (38 items)

1. Seeking Information (11 items)

a. reading, viewing, and consulting references (4 items)
b. talking and discussing (7 items)

2. Doing and Experiencing (11 items)
a. Workers and work-setting (2 items)
b. engaging in self/career exploratory activities (6 items)

(1) hobbies and clubs, school or community activities
(2) school courses
(3) part-time work experiences

c. practicing employment seeking skills: role played a job interview, wrote a resume etc. (3 items)

3. Focusing Information and Experience Resources on specific occupational preferences (7 items)

4. Making Career Plans (9 items)

a. planning activities: planned course work to fit goals, worked out a plan to finance post-high school activities etc. (3 items)
b. self-evaluation of career planning: knowledge of steps involved in carrying out career plans, consideration given to psychosocial factors, etc. (6 items)

IV REACTIONS TO CAREER GUIDANCE EXPERIENCES: Student's perception of help received from various aspects of school career guidance program (e.g. information resources, guidance groups, teacher-initiated activities involving subject related occupations). (7 items)

APPENDIX L

OCCUPATIONS RANKING SCALE

STUDENT NAME_____

GORDON TECHNICAL HIGH SCHOOL

OCCUPATIONS RANKING SCALE

Directions: Rank order the following twelve(12) occupations according to how suitable they are to your interests and values, that is, how well they match you. or conversely how well you match them. A rating of one(1) means that of the twelve(12) occupations listed, you feel this one matches your interests and values the best, a rating of two(2) means that you feel this one matches your interests and values second best etc.

_____Engineer

_____Accountant

_____Recreation Leader

_____Lawyer

_____Photographer

_____Skilled Craftsman

_____Department Store Manager

_____Medical Technician

_____Police Officer

_____Advertizing Executive

_____Realtor

_____Banker

APPENDIX M

STRONG-CAMPBELL INTEREST INVENTORY

Strong-Campbell Interest Inventory of the Strong Vocational Interest Blank

Profile for use with test booklet T325
Stanford University Press, Stanford, California.

SVIB-SCII Profile for

Date Scored

General Occupational Themes

Theme	Basic Scales	Result
R-Theme		This is a ____ Score.
I-Theme		This is a ____ Score.
A-Theme		This is a ____ Score.
S-Theme		This is a ____ Score.
E-Theme		This is a ____ Score.
C-Theme		This is a ____ Score.

Administrative Indexes

(for the use of the examiner)

Total Responses

Infrequent Responses

	Responses % LP	IP	DP
Occupations			
School Subjects			
Activities			
Amusements			
Types of People			
Preferences			
Characteristics			

Special Scales: AOR: ____ IE: ____

Basic Interest Scales

	Scale	High Score	Very Low	Low	Average	High	Very High
R-Theme	Agriculture						
	Nature		30	35 40	45 50 55	60 65	70
	Adventure						
	Military Activities						
	Mechanical Activities						
I-Theme	Science						
	Mathematics						
	Medical Science						
	Medical Service						
A-Theme	Music/ Dramatics		30	35 40	45 50 55	60 65	70
	Art						
	Writing						
S-Theme	Teaching						
	Social Service						
	Athletics						
	Domestic Arts						
	Religious Activities						
E-Theme	Public Speaking						
	Law/ Politics						
	Merchandising						
	Sales						
	Business Mgmt.		30	35 40	45 50 55	60 65	70
C-Th	Office Practices						

Occupational Scales

Code	Scale	Sex	Num	Very Dissimilar	Dissimilar	Average	Similar	Very Similar
MC	Painter	m						
MC	Interiors, Assessor	f						
MCE	Voc. Agric. Teach.	m						
MEC	Dietitian	m						
MES	Police Officer	m						
MSE	Hwy. Patrol. Off.	m						
ME	Army Officer	f						
MS	Phys. Ed. Teacher	f						
R	Skilled Crafts	m						
RI	Forester	m						
RI	Rad. Tech. (X-ray)	f						
RI	Merch. Mar. Off.	m						
RI	Navy Officer	m						
RI	Nurse, Registered	m						
RI	Veterinarian	m	15	25	45	55		
RIC	Cartographer	m						
RIC	Army Officer	m						
RIE	Air Force Officer	m						
RIA	Occup. Therapist	f						
IR	Engineer	f						
IR	Engineer	m						
IR	Chemist	f						
IR	Physical Scientist	m						
IR	Medical Tech.	f						
IR	Pharmacist	f						
IR	Dentist	f						
IR	Dentist	m	15	25	45	55		
IR	Dental Hygienist	f						
IRS	Phys. Therapist	f						
IRS	Physician	m						
IRS	Math-Sci. Teacher	m						
ICR	Math-Sci. Teacher	f						
IC	Dietician	f						
IRC	Medical Tech.	m						
IRC	Optometrist	m						
IRC	Computer Progr.	f						
IRC	Computer Progr.	m						
I	Mathematician	f						
I	Mathematician	m	15	25	45	55		
EI	Physicist	f						
I	Biologist	m						
I	Veterinarian	f						
I	Optometrist	f						
I	Physician	f						
I	Social Scientist	m						
IA	College Professor	f						
IA	College Professor	m						
IS	Speech Pathol.	f						
IS	Speech Pathol.	m						
IAS	Psychologist	f						
IAS	Psychologist	m	15	25	45	55		
IA	Language Interp.	f						
AMI	Architect	m						
A	Advertising Exec.	f						
A	Author	f						
A	Artist	m						
A	Art Teacher	f						
A	Photographer	m						
A	Musician	f						
A	Musician	m						
A	Librarian	f						
AE	Int. Decorator	m						
AE	Advertising Exec.	m						
A	Language Teacher	f						
A	Librarian	f						
A	Librarian	m						
A	Reporter	f						
A	Reporter	m						
AS	English Teacher	f						
AS	English Teacher	m						
SI	Nurse, Registered	f						
SIR	Phys. Therapist	m						
SRC	Nurse, Lic. Pract.	m						
S	Social Worker	f						
S	Social Worker	m						
S	Priest	m	15	25	45	55		
S	Dir., Christian Ed.	f						
SE	YWCA Staff	f						
SIE	Minister	m						
SFA	Elem. Teacher	m						
SC	Elem. Teacher	f						
SCE	Sch. Superintend.	m						
SCE	Public Administr.	m						
SCE	Guidance Couns.	m						
SER	Recreation Leader	f						
SEC	Recreation Leader	m						
SEC	Guidance Couns.	f						
SEC	Soc. Sci. Teacher	f	15	25	45	55		
SEC	Soc. Sci. Teacher	m						
SEC	Personnel Dir.	m						
ESC	Dept. Store Mgr.	m						
ESC	Home Econ. Teac.	f						
ESA	Flight Attendant	f						
ES	Co. of Coml. Engr.	m						
ES	Sales Manager	m						
ES	Life Ins. Agent	m						
E	Life Ins. Agent	f						
E	Lawyer	f						
E	Lawyer	m						
EI	Computer Sales	m	15	25	45	55		
EI	Investm. Fund Mgr.	m						
EIC	Pharmacist	m						
EC	Buyer	f						
ECS	Buyer	m						
ECS	Credit Manager	m						
ECS	Funeral Director	m						
ECR	Realtor	m						
ERC	Agriculturist Mgr.	m						
ERC	Purchasing Agent	m						
ESR	Chiropractor	m						
CE	Accountant	m						
CE	Banker	f	15	25	45	55		
CE	Banker	m						
CE	Credit Manager	f						
CE	Dept. Store Sales	f						
CE	Business Ed. Teac.	f						
CES	Business Ed. Teac.	m						
CSE	Exec. Housekeeper	f						
C	Accountant	f						
C	Secretary	f						
CR	Dental Assistant	f						
CRI	Nurse, Lic. Pract.	f						
CRE	Beautician	f						

Understanding Your Results on the SVIB-SCII

Here are your scores for this interest inventory. They have been calculated from your answer sheet by computer.

First, a caution. There is no magic here. Your answers to the test booklet were used to determine your scores: your results are based on what you said you liked or disliked. The results can give you some useful systematic information about yourself, but you should not expect miracles.

More important, *this test does not measure your abilities;* it can tell you something about the patterns in your interests, and how these compare with those of successful people in many occupations, but the results are based on *your interests*, not your abilities. The results may tell you, *for example*, that you like the way engineers spend their day; they do not tell you whether you have a head for the mathematics involved.

Although most of us know something of our own interests, we're not sure how we compare with other people, especially with people actively engaged in various occupations. We don't know "what it would be like" to be a writer, or salesman, or scientist, or whatever. People using these results are frequently guided to considering occupations they had never given a thought to before.

Men and women, even those in the same occupation, tend to answer some items on the test quite differently. Research has shown that these differences should not be ignored—that separate scales for men and women provide more meaningful results. Generally, the scales for your sex—those marked with the "Sex Norm" corresponding to your sex ("m" or "f")—are more likely to be good predictors for you than scales for the other sex would be. Still, you have been scored on *all* the scales, female and male, so that you can make use of the maximum possible information. In some cases, such as FARMER and SECRETARY, Occupational Scales have not yet been established for both sexes.

Just how accurate the SCII is in predicting future careers is difficult to say. Studies made years later of employed people who completed earlier editions of this form in their high school or college days have shown that about one-half end up in occupations compatible with their profile scores, and most of these like their work. Among those who end up in occupations not compatible with their results, many say they don't like their work, or are doing the job in some unusual manner. In general, profiles with distinct and consistent patterns of high and low scores are better predictors than profiles with scores spread pretty evenly across the middle ranges.

Your answers have been analyzed in three main ways: first, under "General Occupational Themes," for general similarity to six important overall patterns; second, under "Basic Interest Scales," for similarity to clusters of specific activities; third, under "Occupational Scales," for similarity to the interests of men and women in about 100 occupations. The other two groups of data on the profile—in the small blocks labeled "Administrative Indexes" and "Special Scales"—are of interest mainly to your counselor. The first are checks to make certain that you made your marks on the answer sheet clearly and that your answers were processed correctly. The second are scales that have been developed for use in particular settings and require special interpretation; your counselor will discuss them with you.

The Six General Occupational Themes

Psychological research has shown that people can be described or contrasted in a general way by relating them to six overall occupational-interest themes. Your scores for these six themes have been calculated from the answers you gave to the questions in the test booklet. The average person scores about 50 on each theme. If your score on a given theme is a great deal higher, say over 60, you share many of the characteristics of that theme; if your score is low, say below 40, you share very few; and if your score is close to the average, you share some characteristics but not many.

Men and women score somewhat differently on some of these themes, and this difference is taken into account by the printed statement following each score; this statement, which might be, for example, "This is a MODERATELY HIGH score," is based on a comparison between your scores and the average scores for your sex. Thus, you can compare your score either with the scores of a combined male-female sample, by noting your numerical score under the column "Std Score," or with the scores of only the members of your own sex, by noting the phrasing of the printed comment.

Following are descriptions of the "pure," or extreme, types for the six General Occupational Themes. These descriptions are, most emphatically, only generalizations; none will fit any one person exactly, and in fact most people's interests combine all six themes to some degree or other. Even if you have scored quite high on a given theme you will find that some of the statements used to characterize the extreme type of that theme do not apply to you.

R-THEME: Extreme examples here are rugged, robust, practical, physically strong, and frequently aggressive in outlook; such people usually have good physical skills, but sometimes have trouble expressing themselves in words or in communicating their feelings to others. They like to work outdoors, and they like to work with tools, especially large, powerful machines. They prefer to deal with things rather than with ideas or with people. They generally have conventional political and economic opinions, and are usually cool to radical new ideas. They enjoy creating things with their hands and prefer occupations such as mechanic, construction work, fish and wildlife management, laboratory technician, some engineering specialties, some military jobs, agriculture, or the skilled trades. Although no single word can capture the broad meaning of the entire theme, the word REALISTIC has been used to characterize this pattern, thus the term R-THEME.

I-THEME: This theme tends to center around science and scientific activities. Extremes of this type are task-oriented; they are not particularly interested in working around other people. They enjoy solving abstract problems and have a great need to understand the physical world. They prefer to think through problems rather than act them out. Such people enjoy ambiguous challenges and do not like highly structured situations with many rules. They frequently have unconventional values and attitudes and tend to be original and creative, especially in scientific areas. They prefer occupations such as design engineer, biologist, social scientist, research laboratory worker, physicist, technical writer, or meteorologist. The word INVESTIGATIVE is used to summarize this pattern, thus I-THEME.

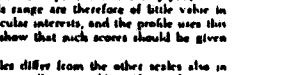
A-THEME: The extreme type here is artistically oriented, and likes to work in artistic settings where there are many opportunities for self-expression. Such people have little interest in problems that are highly structured or require gross physical strength, preferring those that can be dealt with through self-expression in artistic media. They resemble I-THEME types in preferring to work alone, but have a greater need for individualistic expression, are usually less assertive about their own opinions and capabilities, and are more sensitive and emotional. They score higher as measures of originality than any of the other types. They describe themselves as independent, original, unconventional, expressive, and tense. Vocational choices include artist, author, cartoonist, composer, singer, dramatic coach, poet, actor or actress, and symphony conductor. This is the ARTISTIC theme, or A-THEME.

S-THEME: The pure types here are sociable, responsible, humanistic, and concerned with the welfare of others. They usually express themselves well and get along well with others; they like situations and seek situations allowing them to be at or near the center of the group. They prefer to solve problems by discussions with others, or by arranging or rearranging relationships between others; they have little interest in situations requiring physical exertion or working with machinery. Such people describe themselves as cheerful, popular, achieving, and good leaders. They prefer occupations such as school superintendent, clinical psychologist, high school teacher, marriage counselor, playground director, speech therapist, or vocational counselor. This is the SOCIAL theme, or S-THEME.

E-THEME: The extreme types here have a great facility with words, which they put to effective use in selling, dominating, and leading; frequently they are in sales work. They see themselves as energetic, enthusiastic, adventurous, self-confident, and dominant, and they prefer social tasks where they can assume leadership. They enjoy persuading others to their viewpoints. They are impatient with precise work or work involving long periods of intellectual effort. They like power, status, and material wealth, and enjoy working in expressive settings. Vocational preferences include business executive, buyer, hotel manager, industrial relations consultant, political campaigner, realtor, many kinds of sales work, sports promoter, and television producer. The word ENTERPRISING summarizes this pattern of interests, thus E-THEME.

C-THEME: Extremes of this type prefer the highly ordered activities, both verbal and numerical, that characterize office work. They fit well into large organizations but do not seek leadership; they respond to power and are comfortable working in a well-established chain of command. They dislike ambiguous situations, preferring to know precisely what is expected of them. Such people describe themselves as conventional, stable, well-controlled, and dependable. They have little interest in problems requiring physical skills or intense relationships with others, and are most effective at well-defined tasks. Like the E-THEME type, they value material possessions and status. Vocational preferences are mostly within the business world, and include bank examiner, bank teller, bookkeeper, some accounting jobs, financial analyst, computer operator, inventory controller, tax expert, statistician, and traffic manager. Although, again, one word cannot adequately represent the entire theme, the word CONVENTIONAL more or less summarizes the pattern, hence C-THEME.

These six themes can be arranged in the form of a hexagon, as shown below, in such a way that themes falling next to each other (that is, on adjacent corners) are the most similar to each other, whereas those directly across the hexagon from each other are the most dissimilar. These similarities and differences among extreme types are useful in interpreting your own scores.



Few people are "pure" types, scoring high on one theme and low on all the others. Most score high on two, or even three, which means they share some characteristics with each of these; for their career planning, such people should look for an occupational setting that cuts across these patterns.

A few people score low on all six themes; this probably means they have no consistent occupational orientation and would likely be equally comfortable in any of several working environments. But many people, especially young people, score in this manner simply because they haven't had the opportunity to become familiar with a variety of occupational activities.

The Basic Interest Scales

These scales are more or less intermediate between the General Occupational Themes and the Occupational Scales. Each is concerned with one specific area of activity, an area that might partially characterize a General Theme and at the same time be common to a number of occupations. The 23 scales are arranged on the profile in groups corresponding to the strength of their relationships to the six General Themes.

For each scale the level of your score shows how consistently you answered "Like" to the activities in that area. If, for example, you consistently answered "Like" to such items as *Making a speech, Expressing judgments publicly,* and *Be a TV announcer*, then you will have a high score on the PUBLIC SPEAKING scale and you will probably have a higher than average score on the E-THEME. If you consistently answered "Dislike" to these items, you will have a low score on the PUBLIC SPEAKING scale and probably a low score on the E-THEME.

Whether your score is considered high or low depends on how other people answer. On these scales, the average adult scores about 50; if your score for a given scale is substantially higher than that, say about 60, then you have shown more consistent preferences for that kind of activity than the average adult does, and you should look upon that area of activity as an important focus of your interests. The opposite is true for low scores.

As with the other scales, your scores are given both numerically (as a number printed under "Std Score") and graphically (as a mark printed on the grid at the right of the numerical scores).

The differences between the sexes in these areas of interest are also displayed graphically: the open bars indicate the middle 50 percent of female scores, the shaded bars the middle 50 percent of male scores. The extending, thinner lines cover the middle 90 percent of scores; and the mark in the middle is the average.

You might find that your scores on some of the Basic Interest Scales appear to be inconsistent with scores on the corresponding Occupational Scales. This can happen—you might, for example, score high on the MATHEMATICS scale and low on the MATHEMATICIAN scale. Scores of this sort are not errors; they are in fact a useful finding. What they usually mean is that although you have a great liking for the subject matter of an occupation (say, mathematics), you share with people in that occupation (mathematicians) very few of their other likes or dislikes, and you would probably not enjoy the day-to-day life of their working world.

The Occupational Scales

Your score on a given Occupational Scale shows how similar your interests are to the interests of people in that occupation. If you reported the same likes and dislikes as they do, your score will be high and you would probably enjoy working in that occupation or a closely related one. If your likes and dislikes are different from those of the people in the occupation, your score will be low and you would not likely be happy in that kind of work. Remember that the scales for your sex—those marked in the "Sex Norm" column with the sex corresponding to yours—are more likely to be good predictors for you than scales for the other sex would be.

Your score for each scale is printed in numerals and also plotted graphically. Members of an occupation score about 50 on their own scale—that is, female dentists score about 50 on the DENTIST "f" scale, male artists score about 50 on the ARTIST "m" scale, and so forth. If you score high on a particular scale—say 45 or 50—you have many interests in common with the workers in that occupation. The higher your score, the more common interests you have. *But note that on these scales your scores are being compared with those of people working in these occupations;* in the scoring of the General Themes and the Basic Interest Scales you were being compared with "people-in-general." If your score on any of the Occupational Scales is in the "average" range—between 36 and 44—you have responded *in the way people-in-general do.* Scores in this range are therefore of little value in understanding your particular interests, and the profile uses this narrow shaded band to show that such scores should be given little attention.

The Occupational Scales differ from the other scales also in considering your dislikes as well as your likes. If you share the same *dislikes* with the workers in an occupation, you will score moderately high on their scale, even if you don't agree with their *likes*. For example, farmers, artists, and physicists dislike, in general, working with people; if you don't like working with people, you share this attitude with the people in these occupations, and may score fairly high—40, say—on these scales even if you don't like agriculture, art, or science. But a higher score—50, say—reflects an agreement on likes *and* dislikes.

Occupational Groupings

So that the overall pattern of your scores on the Occupational Scales can be better understood, they have been arranged on the profile in six clusters corresponding roughly to the six General Occupational Themes. Within each cluster, occupations expressing more or less similar interests are listed side by side. And because male workers in an occupation sometimes have interests somewhat different from those of female workers in the same occupation, the two scales for that occupation ("m" and "f") may be given on the profile in different groupings.

Just to the left of each Occupational Scale name on the profile are one to three letters indicating the General Themes characteristic of that occupation. These will help you to understand the interest patterns found among the workers in that occupation, and to focus on occupations that might be interesting to you. If you score high on two themes, for example, you should scan the list of Occupational Scales and find any that have the same two theme letters in front of them in any order. If your scores there are also high—as they are likely to be—you should find out more about those occupations, and about related occupations not given on the profile. Your counselor can help you here.

Using Your Scores

Your scores can be used in two main ways: first, to help you understand how your likes and dislikes fit into the world of work; and second, to help you identify possible problems by pointing out areas where your interests differ substantially from those of people working in occupations that you might be considering. Suppose, for example, that you have your heart set on some field of science, and the results show that you have only a moderate interest in the daily exercise of mathematical skills necessary in that setting. Although this is discouraging to learn, you are at least prepared for the choice between (1) abandoning that field of science as a career objective, (2) trying to increase your enthusiasm for mathematics, and (3) finding some branch of the field that requires less use of mathematics.

You have been scored on a broad range of general interests and specific occupations. But you should not become dead set on one particular occupation where your score is high, at least not at an early age; in the world of work there are many hundreds of specialties and professions. Instead, using these results and your scores on other tests as guides, you should search out as much information as you can about *these occupational areas where your interests and aptitudes are focused.* Ask your librarian for information on jobs in these areas, and talk to people working in these fields. Talk with your counselor, who is especially trained to help you, about your results on this test and other tests, and about your future plans. You should recognize that choosing an occupation is not a single decision, but a series of decisions that will go on for many years; whenever a new decision must be made, you should seek the best possible information about yourself and about the work areas you are considering. Your scores on this inventory should help.

Comments for the Counselor on Interpreting the SVIB-SCII

The Strong-Campbell Interest Inventory is a revision and extension of the widely used Strong Vocational Interest Blank, and differs from the earlier SVIB chiefly in two ways: in the addition of the General Occupational Themes, and in the merging of men's and women's forms into a single instrument.

The SCII can be used with anyone who understands the vocabulary of the test items, that is, most people over 16. The inventory has been used for special projects as early as the eighth grade (age 14), but although profiles for students of 14 or 15 do reflect their current interests, they may not accurately predict future interests or careers. At this age, the inventory should be used mainly as a vehicle for discussion of the world of work. By age 17, definite patterns emerge that remain fairly stable, and by age 25, most people's interests are well established.

The profile reflects the patterns of answers made to the inventory, patterns that can be related statistically to the interests of men and women in particular occupations, but the results should be seen only as general predictions of where the individual can find occupational satisfaction. The best help a counselor can give is to help students realize the importance of the overall patterns in their scores. Most students tend to overemphasize the importance of one or two high (or low) scores that may, for various reasons, be misleading. The emphasis should be on long-term development rather than on making immediate decisions. Students often need help in finding more information about the areas where they scored high, and they usually need to be reminded that this is a test of interests, not aptitudes.

Earlier editions of the inventory were used mainly with college students, but one purpose of the revisions leading to the current edition was to make the inventory more broadly useful. Toward this end, the item coverage was expanded, the reading level of the booklet was lowered, more noncollege occupations were added to the profile, and a few unpopular occupations were dropped.

Men and women, even those in the same occupation, give somewhat different responses to the inventory. As the norms for the Basic Interest Scales demonstrate, these differences are most prominent in the artistic and domestic areas, which tend to be favored by women, and in the mechanical area, favored by men. To have ignored the various sex-linked differences in the scoring of the Occupational Scales would have introduced significant error. Until men's interests no longer differ notably from women's, separate scales will provide more meaningful results. And because some occupations continue to be dominated by one sex—"farmer," for example, or "secretary"—Occupational Scales have not yet been developed for both sexes in all cases. Research is under way toward reconciling these disparities of the real world with the purposes of interest inventories.

On the reverse side of the student's copy of the profile is a basic explanation of the three principal classes of scales; with the help of these comments, most students can understand their own scores. The counselor can help, first, by explaining the finer technical details; second, by explaining any apparent inconsistencies between scores of different types; and third, by helping students integrate this information with such data as are available on their aptitudes and experiences.

The General Occupational Themes

These six themes, described briefly on the student's copy of the profile, are based on J. L. Holland's work, *Making Vocational Choices: A Theory of Careers* (Prentice-Hall, 1973). His book is an excellent source for further information about these themes and the world of work.

Holland's chief premise is that each of us can be described in terms of relative similarity to one or more of six idealized occupational-interest personality types, and that each type seeks out a different kind of occupational environment. Thus, personality types do as much as job requirements to establish the working tenor of a given occupation. Although this formulation is oversimplified, it offers a useful structure—one that conforms to empirical research results—for analyzing the differences between people and the occupations they choose. Most important, Holland's theory offers an organizing structure for the extensive network of empirical studies carried out over the years with the Strong inventories.

The six themes or scales each contain 20 items, scored positively for "Like" responses and negatively for "Dislike" responses. Norms have been established by scoring a general sample of 600 people (300 men and 300 women), then assigning this sample a mean of 50 and a standard deviation of 10, as a basis for converting future raw scores to standard scores. The numerical score, printed out under "Std Score-," is based on this combined norm sample. Because males and females score somewhat differently on these scales, printed interpretive comments—"This is a HIGH score" and so forth—are also supplied; these comments are based on comparisons with people of the same sex as the person being tested (and for this reason the correct sex must be indicated on the answer sheet). In some cases, therefore, men and women with the same numerical score will be furnished different printed comments. Within each sex, the interpretive comments correspond to the following percentile ranges:

Very high	94th and above
High	85th–93rd
Moderately high	70th–84th
Average	31st–69th
Moderate/ low	16th–30th
Low	7th–15th
Very low	6th and below

The six themes can be arranged in the form of a hexagon, as shown on the student's copy of the profile, in such a way that themes falling next to each other (that is, on adjacent corners) are the most similar to each other, and those directly across the hexagon from each other are the most dissimilar. These similarities and differences among extreme types are useful in interpreting the student's scores. In particular, two aspects of the General Theme scores should be used to advantage: if the two or three highest scores are on the scales of related themes, such as Investigative and Artistic, the pattern is consistent and will be more predictive than a pattern of equally high scores on less related themes, such as Investigative and Enterprising; and a pattern of clearly differentiated highs and lows among the six theme scores is more predictive than a flat or undifferentiated pattern of scores.

The General Themes should be used to help the student identify a general section of the occupational world for more intensive study. The two or three themes where the student has scored highest should be noted, and then (in conjunction with results on the Basic Interest Scales) compared with the occupations listed in the Occupational Scales section that relate strongly to the same themes. Combinations of high scores on particular Occupational Scales *and* on their related General Theme and Basic Interest Scales are particularly worth noting.

The descriptions of the extreme types for the six themes, given on the student's copy of the profile, have been carefully worded to avoid unfavorable connotations or the appearance of valuations. Still, people might occasionally resent these characterizations, particularly in a group-administered instrument. But what seems to happen is that a person scoring high on a particular theme feels gratified by being thus described and tends to look coolly upon the other, dissimilar types; whereas someone scoring moderately on all six themes reads nothing particularly into any of the descriptions.

The Basic Interest Scales

The Basic Interest Scales are homogeneous scales; they were constructed by clustering together items with high intercorrelations. Because the *item* content is closely focused on only the single topic indicated by the scale name, the scales are relatively easy to understand. "Like" responses to these items are scored positively, "Dislike" responses negatively; thus the level of scores is somewhat related to the percentage of "Like" and "Dislike" responses given. People who give many "Like" responses, say 50 percent or more, will have many more high scores here than those who give only a few, say 15 percent or fewer. For this reason, the LI and DP indexes, described below under "Administrative Indexes," will be useful in interpreting these scales. (These comments apply also to the General Occupational Themes.)

The Basic Interest Scales have been normed on a general sample of 600 men and women; the combined sample has been assigned a standard-score mean of 50 and standard deviation of 10 on each scale. Norms for the two sexes are indicated by the bars printed on the scales; the shaded bar gives the norm for men, the open bar the norm for women. The thick portion of the bar defines the middle half of the sample, from the 25th to the 75th percentile; the thin, extending lines run from the 10th to the 90th percentile; and the vertical line indicates the mean.

The Basic Interest Scales have been arranged in clusters corresponding to their relationships to the General Occupational Themes. Usually there is a marked consistency in the patterns of scores on the two scale types. For example, a person who scores high on the Realistic theme will have at least some high scores in the corresponding cluster of Basic Interest Scales.

Workers in occupations directly related to a given scale score 8–10 points higher on that scale than the general sample does; that is, salesmen average about 60 on the Sales scale, scientists about 60 on the Science scale, artists about 60 on the Art scale, and so forth. Thus, scores over 60 should be considered high; on those few scales showing substantial sex differences, scores 10 points above the relevant sex mean are high.

Scores on the Basic Interest Scales do not change much with age, though there is a tendency for scores to creep upward slightly, perhaps 3 or 4 points on the average, between the teenage years and adulthood. One major exception to this pattern of stability is the Adventure scale, on which teenage boys score about 8–10 points *higher* than adults. Scores on Athletics and Military Activities tend to decrease slightly with age.

The Occupational Scales

Each Occupational Scale was developed by testing 200–300 happily employed men or women (depending on the scale) in that occupation, then isolating the items that they answered differently from the general sample. These items then became the scale for that sex working in that occupation. The scales have been normed by setting the mean of the occupational sample equal to 50, the standard deviation to 10. Thus, a student scoring 50 on a given scale has responded to these characteristic items in the same way the average member of that occupation does. A student scoring in the "average" range—between 36 and 44—has responded to these items the way people-in-general do. Since scores in this range are of little value in profiling the student's interests, they are not discriminated in the profile plotting (the screened area accommodates two asterisk positions—one for scores from 28 to 35, the other for scores from 36 to 44).

Each of the occupations has been given a code type corresponding to its high General Theme scores; the code types are indicated on the profile, and have been used to order the scales. Students should be encouraged to note that the code types of the Occupational Scales where they have high scores usually correspond to their high scores on the General Themes.

The Occupational Scales are more complex than either of the other two types of scales; they include more items; they include items with a wider variety of content; and they score some "Dislike" responses positively (for example, if the members of an occupation dislike an activity substantially more than the general population does, the "Dislike" response to that activity will be weighted positively). Thus, a person can score high on an Occupational Scale by sharing patterns of aversions with the members of that occupation, as well as by sharing their "Likes."

The Occupational Scales should not be seen as precise predictors of occupations where the student will be happy, but only as suggestions. High scores should also be used as leads to related occupations that are not on the profile. And the student should be especially cautioned to infer not that "I scored high on the Farmer scale, therefore I'd be a good farmer," but rather that "I have answered the inventory in much the way farmers do."

Following each Occupational Scale is an "f" or "m" indicating the sex of the sample used to establish the scale. Although same-sex scales are more valid for the individual than other-sex scales, everyone is scored on all scales, to ensure that maximum information is made available to everyone. But only the scores for the same-sex scales, which merit more attention, are plotted visually.

The Administrative Indexes

These indexes are checks to make certain that the answer sheet was completed and processed correctly. The first one, Total Responses, shows how many answer marks the computer has read from the answer sheet; since there are 325 items, the score on this index should be 325 or close to it. Up to 20 items can be omitted without significantly affecting the results.

The second index, Infrequent Responses, shows the number of *rare* responses given. It is weighted so that almost everyone scores zero or higher here; if the score is below zero, the person has marked an uncommonly high number of rare responses (this weighting technique may seem puzzling at first, but it permits the counselor simply to ignore this list, 0, unless it is negative). Usually a negative score indicates some confusion, such as skipping a number on the answer sheet, or random marking.

The remaining indexes show the percentage of "Like" (LP), "Indifferent" (IP), and "Dislike" (DP) responses made to the various sections of the inventory. These percentages can be quite useful in detecting problems—for example, if a section was left blank on the answer sheet the percentages for it will be 0-0-0. The percentages can also be useful in identifying unusual response patterns. Because the General Themes and Basic Interest Scales are scored positively for "Like" responses and negatively for "Dislike" responses, when the percentage of "Like" or "Dislike" responses varies greatly from the usual split of roughly 33-33-33, say to 60-8-32, the level of scores on these scales will be affected. But although these percentages are useful in understanding the student's response style, they should not be overinterpreted; some people produce extreme percentages, yet still have a "normal" pattern on the profile. The tolerance of the scoring system for extreme test-taking strategies is considerable. The distributions of these percentages for a general sample of men and women are given in the *Manual*.

The Special Scales

The AOR (Academic Orientation) scale contains items that discriminate between students who do well in academic settings and those who do not, and as such can be considered an "Occupational Scale" for "college student." Students graduating with a B.A. from a liberal arts college average about 50, M.A.s about 55, Ph.D.s about 60. Most students gain about 10 points on this scale over their 4 years of college; thus, the scores of freshmen should be judged with that in mind. The item content is heavily oriented toward science and the arts (weighted positively) and business and blue-collar activities (weighted negatively).

On the IE (Introversion-Extroversion) scale, high scores (60 and above) indicate introversion and low scores (40 and below), extroversion. The item content is concerned almost entirely with working with people in social service, educational, entertainment, or business settings.

Scores for males are distributed about the same as scores for females, on both of these scales.

Inconsistencies Between Scales

There are three main types of scores on the profile, and one of the tasks of the counselor will be to straighten out misunderstandings about their differences.

The three types of scores can be better understood by using an analogy to descriptions of physical build. The General Occupational Themes are concerned with global categories, and are similar to such overall descriptions as "She is tall and slender" or "He is small and wiry." The Basic Interest Scales are concerned with specific attributes and are similar to statements such as "She weighs 118 pounds" or "He has a reach of 38 inches." The Occupational Scales are concerned with how the person resembles other types of people, and are analogous to statements such as "She has the build of a swimmer" or "He looks like a jockey." Thus, although the three types of scales report three types of scores, a general thread of consistency runs through all of them.

One kind of confusion arises when the score on a specific Basic Interest Scale—such as Art or Agriculture—is high and the score on the related Occupational Scale—Artist or Farmer—is low. This happens because the Occupational Scales are more complex in content than the Basic Interest Scales; they contain all of the substantial differences between the people in those occupations and people in general. The Farmer scale, for example, contains items involving mechanical activities as well as agriculture, and also items involving rejection of social service, artistic, and leadership pursuits. To score high, one must resemble farmers in many of these areas, and not simply share their agricultural interests.

Inconsistencies like this can be useful in counseling. A student who questions an apparent inconsistency between a high score on the Agriculture Basic Scale and a low score on the Farmer scale is usually receptive to a discussion of the "environment" of an occupation; that is, that to be satisfied with farming as a career involves more than simply liking agriculture. Farming involves a way of life, working with machines and animals and not so much with people; it is physically demanding; and for many "intellectual types" it has little appeal. Other inconsistencies—between, say, Art and Artist, Mathematics and Mathematician, or Military Activities and Adult Offices—can lead to equally fruitful discussions.

Further Information

The SVIB-SCII *Manual* contains more detailed information on this inventory and its background, and should be studied before the inventory is administered. Considerably more background information on the history and technical issues of interest measurement is reported in the *Handbook for the SVIB* (D. P. Campbell, Stanford University Press, 1971). Although the earlier Strong Vocational Interest Blank and its *Manual* (Stanford, 1966; *Supplement*, 1969) are still available from the publisher for special purposes (and although some scoring agencies will continue to score the SVIB), for the purposes of the SCII the SVIB *Manual* is completely superseded.

APPENDIX N

CANONICAL CORRELATIONS

CANONICAL CORRELATION: RELATING SELF RATINGS

WITH INDICES OF ACCOMPLISHMENT

#	Eigenvalue	Canonical Correlation	Wilk S Lambda	Chi-Square	D.F.	Signf
1	0.57667	0.75939	0.08826	219.68925	81	0.000
2	0.44103	0.66410	0.20848	141.89544	64	0.000
3	0.31926	0.56503	0.37298	89.25501	49	0.000
4	0.24646	0.49645	0.54790	54.45055	36	0.025

COEFFICIENTS FOR CANONICAL VARIABLES OF THE FIRST SET

	CANVAR 1	CANVAR 2	CANVAR 3	CANVAR 4
SELF 1	-0.29317	0.32569	0.14272	0.46425
SELF 2	-0.09308	0.02192	-0.01844	0.20416
SELF 3	-0.32778	0.42721	-0.63081	-0.25755
SELF 4	0.10513	-0.43488	-0.58707	-0.30542
SELF 5	-0.32071	0.02846	0.31711	0.07997
SELF 6	-0.35051	-0.10412	0.30117	-0.87400
SELF 7	-0.07175	0.27098	-0.34561	0.12152
SELF 8	-0.06550	0.19000	0.28851	0.25612
SELF 9	-0.11711	-0.99347	-0.18365	0.20835

COEFFICIENTS FOR CANONICAL VARIABLES OF THE SECOND SET

	CANVAR 1	CANVAR 2	CANVAR 3	CANVAR 4
INDEX 1	-0.02048	0.35327	-0.33381	-0.07004
INDEX 2	-0.21091	0.40478	0.08813	0.24236
INDEX 3	-0.27981	0.17488	-0.24627	0.07089
INDEX 4	0.01581	-0.61334	-0.44185	-0.38144
INDEX 5	-0.38132	-0.75057	0.63310	0.57953
INDEX 6	-0.50652	0.49955	-0.13997	-0.91051
INDEX 7	-0.04273	0.27537	-0.20508	0.06153
INDEX 8	0.06683	-0.02898	0.22340	0.03708
INDEX 9	-0.02584	-0.43470	-0.46660	0.50793

CANONICAL CORRELATIONS BETWEEN COUNSELOR RATINGS

AND THE INDICES OF ACCOMPLISHMENT

#	Eigenvalue	Canonical Correlation	Wilk S Lambda	Chi-Square	D.F.	Signf
1	0.63112	0.79443	0.12916	185.22726	81	0.000
2	0.32539	0.57043	0.35014	94.97341	64	0.006

COEFFICIENTS FOR CANONICAL VARIABLES OF THE FIRST SET

	CANVAR 1	CANVAR 2
COUNS 1	-0.08723	-0.01293
COUNS 2	-0.18183	-0.24835
COUNS 3	-0.86918	0.43421
COUNS 4	-0.15670	0.05746
COUNS 5	0.11810	0.09654
COUNS 6	-0.21774	0.34432
COUNS 7	0.20595	-0.74513
COUNS 8	-0.03582	-0.20467
COUNS 9	0.04638	-0.21360

COEFFICIENTS FOR CANONICAL VARIABLES OF THE SECOND SET

	CANVAR 1	CANVAR 2
INDEX 1	-0.18953	0.19344
INDEX 2	-0.07949	-0.36191
INDEX 3	-0.85138	0.05769
INDEX 4	0.06775	-0.13080
INDEX 5	0.30824	-0.61526
INDEX 6	-0.25936	0.76448
INDEX 7	0.22909	-0.34679
INDEX 8	0.08242	-0.01651
INDEX 9	-0.20634	-0.36397

CANONICAL CORRELATIONS BETWEEN SELF RATINGS AND COUNSELOR RATINGS

#	Eigenvalue	Correlation	Lambda	Chi-Square	D.F.	Signf
1	0.43815	0.66193	0.17835	156.02476	81	0.000
2	0.33693	0.58046	0.31742	103.85039	64	0.001
3	0.30514	0.55239	0.47872	66.66627	49	0.047

COEFFICIENTS FOR CANONICAL VARIABLES OF THE FIRST SET

	CANVAR 1	CANVAR 2	CANVAR 3
SELF 1	0.18743	0.49714	0.30857
SELF 2	-0.07561	0.15883	-0.13138
SELF 3	-0.00408	0.02036	0.01208
SELF 4	-0.00536	-0.10162	0.25293
SELF 5	0.09956	-0.14835	0.35676
SELF 6	0.25739	-0.29877	-0.86549
SELF 7	0.13139	0.35043	-0.23868
SELF 8	-0.03146	0.37134	-0.44902
SELF 9	0.18074	0.17294	0.38932

COEFFICIENTS FOR CANONICAL VARIABLES OF THE SECOND SET

	CANVAR 1	CANVAR 2	CANVAR 3
COUNS 1	0.56043	0.11901	0.38566
COUNS 2	-0.13908	0.02878	-0.19478
COUNS 3	-1.19421	0.00880	0.09516
COUNS 4	0.33662	-0.01244	0.11290
COUNS 5	0.14874	-0.52329	0.01909
COUNS 6	-0.01298	0.37737	-0.89990
COUNS 7	0.34211	0.71751	0.92685
COUNS 8	-0.03712	0.54668	-0.32181
COUNS 9	0.01554	-0.17895	-0.59279

ONICAL CORRELATIONS BETWEEN COMBINED SELF AND COUNSELOR

RATINGS AND THE INDICES OF ACCOMPLISHMENT

	Eigenvalue	Canonical Correlation	Wilk S Lambda	Chi-Square	D.F.	Signf
1	0.70001	0.83667	0.01527	359.61281	162	0.000
2	0.54049	0.73518	0.05092	256.06795	136	0.000
3	0.47947	0.69244	0.11081	189.19580	112	0.000
4	0.40982	0.64017	0.21288	133.04495	90	0.002

COEFFICIENTS FOR CANONICAL VARIABLES OF THE FIRST SET

	CANVAR 1	CANVAR 2	CANVAR 3	CANVAR 4
SELF 1	0.15999	-0.09674	-0.48041	-0.28057
SELF 2	0.02156	0.09840	0.05648	-0.20726
SELF 3	0.20875	-0.05018	-0.00858	-0.09526
SELF 4	-0.02838	0.17510	0.36908	0.44248
SELF 5	0.28725	0.11822	-0.26056	0.02657
SELF 6	0.07920	0.38041	-0.39401	0.29825
SELF 7	-0.01894	-0.15353	0.06680	-0.37050
SELF 8	-0.03022	0.00186	-0.25686	-0.20813
SELF 9	0.05829	0.56840	0.56840	0.16739
COUNS 1	0.05135	-0.06720	0.07113	0.06403
COUNS 2	0.11935	0.01721	0.42749	-0.17666
COUNS 3	0.61013	-0.45487	-0.07401	0.45116
COUNS 4	0.13559	0.02592	0.23473	0.28844
COUNS 5	-0.12274	-0.16772	-0.10805	-0.35771
COUNS 6	0.21477	-0.05056	-0.13521	0.44947
COUNS 7	-0.12313	0.54583	0.14201	0.20891
COUNS 8	0.01764	-0.16408	0.10123	0.03830
COUNS 9	0.03587	-0.04953	-0.01139	-0.65143

COEFFICIENTS FOR CANONICAL VARIABLES OF THE SECOND SET

	CANVAR 1	CANVAR 2	CANVAR 3	CANVAR 4
INDEX 1	0.14362	-0.17593	-0.11385	0.22068
INDEX 2	0.15469	-0.03862	-0.15354	-0.39914
INDEX 3	0.72760	-0.31043	0.22295	0.12311
INDEX 4	-0.05804	0.40404	0.47839	0.49405
INDEX 5	-0.01453	0.93763	0.08031	-0.20014
INDEX 6	0.38707	-0.17912	-0.77671	0.32159
INDEX 7	-0.18325	-0.02408	-0.06899	-0.66420
INDEX 8	-0.09154	-0.02699	-0.09468	-0.00244
INDEX 9	0.19938	0.20307	0.62567	0.04832

APPROVAL SHEET

The dissertation submitted by William R. Watts has been read and approved by the following committee:

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

April 28, 1977
Date

Gloria J. Lewis
Director's Signature